T.O. GR1F-16CJ-1-1

Supplemental

FLIGHT MANUAL

HAF SERIES AIRCRAFT

F-16C/D

BLOCKS 50 AND 52 +

LOCKHEED MARTIN CORPORATION

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GR1F–16C–1–0001X

Commanders are responsible for bringing this publication to the attention of all Air Force personnel cleared for operation of subject aircraft.

9 JUNE 1997

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DISCLOSURE STATEMENT

SUPPLEMENTAL NOTICE

This manual is incomplete without T.O. GR1F-16CJ-1.

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AIRCRAFT AND COCKPIT DESIGNATION CODES

System and/or component effectivity for a particular aircraft version/cockpit is denoted by a letter code enclosed in a box located in the text or on an illustration. The symbols and designations are as follows:

No code – F-16C and F-16D aircraft

C F-16C aircraft

D F-16D aircraft

DF F-16D aircraft, forward cockpit

DR F-16D aircraft, rear cockpit

BLOCK DESIGNATION CODES/SERIAL NUMBER/TAIL NUMBER CROSS-REFERENCE

Refer to T.O. GR1F-16CJ-1 for a complete block designation codes/serial number/tail number cross-reference listing.

PILOT'S RESPONSIBILITY – TO LET US KNOW

Every effort is made to keep the flight manual current. Review conferences with operating personnel and a constant review of safety investigation and flight test reports assure inclusion of the latest data in the manual. Comments, corrections, and questions regarding this manual or any phase of the flight manual program are welcomed. These should be forwarded on AF Form 847 in accordance with AFI 11-215 through command headquarters to OO-ALC/YPVT, 6080 Gum Lane, Hill AFB, UT 84056-5825.

PUBLICATION DATE

The date appearing on the title page represents the currency of material contained herein.

AIRCRAFT MODIFICATION/RETROFIT INFORMATION

Refer to T.O. GR1F-16CJ-1 for a complete T.O./ECP listing.

GLOSSARY

Refer to T.O. GR1F-16CJ-1 for standard and nonstandard abbreviations, terms, and symbols.

APPENDIX A

F100-PW-229

PERFORMANCE DATA

PART 1 – INTRODUCTION

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LIST OF CHARTS

INTRODUCTION

The data presented in the charts is applicable to aircraft equipped with an F100-PW-229 engine. All performance data is based on use of all approved fuels. The data covers a flight spectrum ranging from sea level to approximately 60,000 feet and 0-2.0 mach. No conservative factors are used in any of the fuel consumption data presented herein. The appendix is divided into nine parts with performance data presented in an appropriate order for flight planning. The usage of the material requires that (except Part 9) all the text be presented first followed by all the charts. Because of the large number of stores and stores loading combinations the aircraft is capable of carrying, most charts are presented in a drag index format. All charts are based on F-16 test data, except the Refusal Speed charts in Part 2 and all charts in Part 7. These exceptions are based on predicted brake performance.

NOTE

Limiting conditions relative to altitude, airspeed, stores, gross weight, etc., are presented in Section V and should be checked prior to selecting mission conditions. Some charts may present data for more than permissible maximun weight per Section V. Such weight presentation does not have precedence over the limits of Section V. All data is based on the (1962) U.S. standard atmosphere and the (1966) U.S. standard atmosphere supplements. Pressure altitude and true mach are used for all data unless specified otherwise.

DRAG INDEX AND CONFIGURATION WEIGHT

Drag index is a numerical factor which provides a means for quantifying the effects on aircraft performance of adding stores to the basic aircraft. The drag index system provides accurate corrections for store effects at all subsonic speeds (less than 1.0 mach). At supersonic speeds (greater than 1.0 mach), the size and shape of the store(s) affect drag to a significant degree, and a single value of drag index can no longer exactly represent all stores and combinations at these speeds. Therefore, it should be noted that actual supersonic performance may vary from that predicted by the performance charts.

Configuration weight is intended to facilitate mission planning by precomputing the weight of a configuration which is to be added to the aircraft operating weight to obtain aircraft start engine weight. Configuration weight is the weight of the complete configuration which is uploaded to the basic aircraft. The configuration weight includes the weight of all the stores (missiles, bombs, pods, etc.), suspension equipment, full external fuel tanks (if used), and ECM pod (if used).

The drag index and configuration weight of authorized takeoff store loadings are presented in T.O. GR1F-16CJ-1-2, STORES LIMITATIONS.

The drag indexes and weights of specific stores and suspension equipment items are given in figure A1-1. If the drag index and configuration weight for a specific loading are not presented in T.O. GR1F-16CJ-1-2, STORES LIMITATIONS (i.e., normal downloads), figure A1-1 may be used to determine drag index and configuration weight.

NOTE

- The drag index for a specific loading accounts for the combined effects of the stores on drag and therefore may vary slightly from the drag index computed using figure A1-1.
- Configuration weight for a specific loading may vary slightly from the weight computed using figure A1-1 due to rounding.

Aircraft start engine weight is determined by adding aircraft operating weight, internal usable fuel, and, if installed, ammunition, chaff/flares, and configuration weight. All these weights are given in figure A1-1.

The aircraft operating weight given is an approximate value and includes pilot (D 2), oil, oxygen, unusable fuel, and tip missile launchers. For weight and balance information, refer to the individual aircraft Form F (DD Form 365-4) and the Weight and Balance Handbook. An example of the determination of the drag index, configuration weight, and aircraft start engine weight is provided in the sample problem which follows.

REFER TO FIGURE A1-1.

Assume a loading of four AIM-9L missiles on LAU-129/A launchers, two MK 84 bombs, and two 370-gallon fuel tanks. The drag index and configuration weight for this loading from T.O. GR1F-16CJ-1-2, STORES LIMITATIONS, are 152 and 11,777 pounds, respectively.

For this example, drag index and configuration weight are computed as follows:

STA 1 and 9 (2 AIM-9L missiles on LAU-129/A launchers)

The basic aircraft drag index includes tip missiles on 16S210 missile launchers. The drag index is 1 for a tip missile on a LAU-129/A missile launcher and the weight of an AIM-9L is 195 pounds.

For two AIM-9L's on LAU-129/A launchers:

- Drag index = 2 × 1 = 2
- Weight = 2 × 195 = 390 pounds

STA 2 and 8 (AIM-9L missiles on LAU-129/A launchers + adapters)

One AIM-9L has a drag index of 5 and weighs 195 pounds. The drag index of a LAU-129/A launcher with adapter is 6 and the weight is 113 pounds. Since AIM-9L's are carried at stations 2 and 8, multiply each drag index and weight by 2 and sum the results.

For two AIM-9L's and LAU-129/A launchers with adapters:

- Drag index = (2 × 5) + (2 × 6) = 22
- Weight = (2 × 195) + (2 × 113) = 616 pounds

STA 3 and 7 (MK 84 on wing weapon pylon)

The drag index of one MK 84 bomb is 9 and the bomb weight is 1970 pounds. The drag index of a pylon with MAU-12C/A, D/A rack at station 3 or 7 is 15 and the weight is 289 pounds. Since two MK 84 bombs are to be carried on pylons, multiply each drag index and weight by 2 and sum the results.

For two MK 84's on wing weapon pylons:

- Drag index = (2 × 9) + (2 × 15) = 48
- Weight = (2 × 1970) + (2 × 281) = 4502 pounds

STA 4 and 6 (370-gallon fuel tanks)

In a similar manner, find that the drag index of one 370-gallon fuel tank, mounted on station 4 or 6 with single stores at 3 or 7, is 35 and its weight is 531 pounds (empty) or 3047 pounds (full). Note that no rack is required to install the tank on the wing.

For two tanks:

- Drag index = 2 × 35 = 70
- Weight = 2 × 3047 = 6094 pounds (full)

The total store loading drag index and configuration weight can now be determined by summing the individual store station values.

	Drag Index	Configuration Weight
• STA 1 and 9	2	390
• STA 2 and 8	22	616
• STA 3 and 7	48	4,502
• STA 4 and 6	70	6,094
Total	142	11,602 pounds

Using these values plus the basic aircraft drag index and weights, the drag index and start engine weight can be determined:

Drag Index

• Basic aircraft drag index	= 7	C
• Store loading drag index	= 142	
Drag index total	= 149	

Start Engine Weight

• Aircraft operating weight	= 20,168	C
• Internal usable fuel (JP-8)	= 7,116	C
• Ammunition (full drum)	= 287	
• Chaff/flares (not loaded)	= 0	
• Configuration weight	= 11,602	
Total start engine weight	= 39,173 pounds	

NOTE

Assumed values for basic aircraft operating weight and drag index are used in the sample problems throughout this appendix in order to eliminate reworking the problems whenever the basic operating weight or drag index changes due to modifications. The sample problems are aids in using the appendix and are not necessarily applicable to specific configurations.

POSITION ERROR CORRECTION

A single nose-mounted pitot-static probe supplies static and total pressure information to the CADC, altimeter, and airspeed indicator. The CADC computes calibrated airspeed, true airspeed, true mach, and calibrated altitude and provides the required signals to drive the airspeed and altitude indications on the HUD.

The CADC provides corrected (calibrated) altitude signals to the altimeter when the altimeter is in ELECT. When the altimeter is in PNEU, it displays indicated (not corrected for position error) altitude. The airspeed indicator always displays indicated airspeed and mach number. Position error corrections are shown in figure A1-2.

REFER TO FIGURE A1-2.

Enter Position Error Correction – Airspeed and Altitude chart with desired calibrated airspeed (A), proceed vertically to desired pressure altitude lines (B), then proceed horizontally to read altitude correction (C) and airspeed correction (D). Subtract the corrections from the desired conditions to obtain indication reading. Mach position error corrections may be found in a similar manner.

SAMPLE PROBLEM.

A.	KCAS	=	380
B.	Pressure altitude	=	30,000 feet
C.	Altitude correction	=	175 feet
•	Altimeter reading	=	30,000 – 175 = 29,825 feet
D.	Airspeed correction	=	1.5 knots
•	Airspeed indicator reading	=	380 – 1.5 = 378.5 knots

AIRSPEED CONVERSION

Curves shown in figure A1-3 are presented as an aid for conversion between calibrated airspeed, true airspeed, and mach number. Fahrenheit/Centigrade temperature conversion is also shown.

REFER TO FIGURE A1-3.

To obtain mach numbers, enter Airspeed Conversion chart with calibrated airspeed (A). Proceed vertically to altitude (B) and horizontally left to read mach number (C).

To obtain KTAS, enter Airspeed Conversion chart with calibrated airspeed (A). Proceed vertically to altitude (B), then horizontally left to temperature (D), and then vertically upward or downward, as applicable, to read KTAS (E).

SAMPLE PROBLEM.

A.	KCAS	=	225
B.	Altitude	=	40,000 feet
C.	Mach number	=	0.75
D.	Temperature	=	–40°C
E.	KTAS	=	446

COMPRESSIBILITY CORRECTION TO AIRSPEED

Figure A1-4 is provided as an aid to converting calibrated airspeed into equivalent airspeed.

REFER TO FIGURE A1-4.

Enter Compressibility Correction to Airspeed chart with calibrated airspeed (A), proceed vertically upward to altitude (B) and proceed horizontally left to read compressibility correction (C). Note that the chart can also be entered at (B) with mach and altitude. Subtract the compressibility correction from calibrated airspeed to obtain equivalent airspeed.

SAMPLE PROBLEM.

A.	KCAS	=	300
B.	Altitude	=	30,000 feet
C.	Compressibility correction	=	15 knots
•	KEAS	=	300 – 15 = 285

MISCELLANEOUS CHARTS

STANDARD ATMOSPHERE, figure A1-5, and TEMPERATURE CORRECTION FOR COMPRESSIBILITY, figure A1-6, are included for information. No samples are provided for these charts since they are self-explanatory.

ANGLE OF ATTACK (AOA)

AOA data is provided in figure A1-7 for information. AOA data for altitudes from sea level to 60,000 feet and from 0.3-1.2 mach is shown.

REFER TO FIGURE A1-7.

Enter AOA chart with GW (A), proceed horizontally to altitude (B), vertically down to mach number (C), and horizontally left to read AOA (D).

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Altitude	=	30,000 feet
C.	Mach number	=	0.80
D.	AOA	=	4.6 degrees

AVAILABLE LOAD FACTOR

Load factors available with the LG handle in UP and the STORES CONFIG switch in CAT I or CAT III are presented in figure A1-8. The load factor data is presented as a function of altitude, mach, and GW and is valid for all temperatures, throttle settings, and DI. The load factor value obtained from this chart is based solely on the aerodynamic characteristics of the aircraft. Sustained load factor capabilities are presented in Part 8.

REFER TO FIGURE A1-8.

Determine either CAT I or CAT III loading. Enter Available Load Factor chart with mach (A). Proceed vertically to altitude (B) and then horizontally left to the GW baseline and parallel guidelines to GW (C). Finally, proceed left to read available load factor (D).

SAMPLE PROBLEMS (CAT I).

A.	Mach	= 0.6
B.	Altitude	= 20,000 feet
•	KCAS	= 275
C.	GW	= 23,000 pounds
D.	Available load factor	= 4.7g

A.	Mach	= 1.4
B.	Altitude	= 10,000 feet
•	KCAS	= 794 (obtained from figure A1-3)
C.	GW	= 28,000 pounds
D.	Available load factor	= 9.0g

SAMPLE PROBLEMS (CAT III).

A.	Mach	= 1.6
B.	Altitude	= 35,000 feet
•	KCAS	= 584
C.	GW	= 33,000 pounds
D.	Available load factor	= 5.5g

A.	Mach	= 0.5
B.	Altitude	= 30,000 feet
•	KCAS	= 184
C.	GW	= 28,000 pounds
D.	Available load factor	= 1.3g

A.	Mach	= 0.8
B.	Altitude	= Sea level
•	KCAS	= 529 (obtained from figure A1-3)
C.	GW	= 28,000 pounds
D.	Available load factor	= 9.0g

TURN CONVERSION

Figure A1-9 is provided as an aid for conversion between load factor, turn rate, turn radius, KTAS, and bank angle.

GROUND VEHICLE FRICTION READING-TO-RCR CONVERSION

Figure A1-10 is provided as an aid for conversion between ground vehicle friction reading and RCR/braking action level.

Drag Indexes and Weights — Basic Aircraft

DATA BASIS FLIGHT TEST

AIRCRAFT OPERATING WEIGHT — LB*	F-16C**	F-16D**
BASIC AIRCRAFT	20,200	21,400

*INCLUDES PILOT ([D] 2), OIL, UNUSABLE FUEL, AND TIP MISSILE LAUNCHERS.
**ALL WEIGHTS ARE APPROXIMATE. REFER TO INDIVIDUAL AIRCRAFT WEIGHT AND BALANCE HANDBOOK FOR ACTUAL AIRCRAFT WEIGHT.

DRAG INDEX (SUBSONIC/SUPERSONIC)*	F-16C	F-16D
BASIC AIRCRAFT	7/6	11/7

*AIM-9L TIP MISSILES ON 16S210 LAUNCHERS INCLUDED.

EXPENDABLES WEIGHT — LB		F-16C	F-16D
INTERNAL USABLE FUEL	JP-8	7116	5874
EXTERNAL USABLE FUEL:	JP-8		
• 300-GALLON TANK	JP-8	2040	2040
• 370-GALLON TANK	JP-8	2516	2516
• 600-GALLON TANK	JP-8	3961	3961
CHAFF/FLARES		48*	96**
GUN AMMO:		287	287
• FULL DRUM (511 ROUNDS)		130	130
• FIRED OUT (RETAINED AMMO/CASINGS, 511 ROUNDS)			

*CHAFF/FLARE WEIGHT BASED ON 2 FULLY LOADED CHAFF MAGAZINES AND 2 FULLY LOADED FLARE MAGAZINES
**CHAFF/FLARE WEIGHT BASED ON 4 FULLY LOADED CHAFF MAGAZINES AND 4 FULLY LOADED FLARE MAGAZINES

Figure A1-1. (Sheet 1)

Drag Indexes and Weights — Suspension Equipment

DATA BASIS FLIGHT TEST

SUSPENSION EQUIPMENT	STATION	JETTISON WEIGHT LB	TOTAL WEIGHT LB	DRAG INDEX
ADAPTER (16S301)	2,3,7, OR 8	0	26	2
AIM-9 LAUNCHER (16S210)	1 OR 9	0	72	0
AIM-9 LAUNCHER (16S210) + ADAPTER (16S301)	2,3,7, OR 8	0	98	6
CENTERLINE PYLON* (16S951)	5	0	177	7
NONJETTISON (NJETT) FUEL PYLON*	4 OR 6	0	304	8
LANTIRN TARGETING POD PYLON (16S1150)	5R	0	42	3
LAU-88/A + WEAPON PYLON*	3 OR 7	468	749	29
LAU-88 A/A + WEAPON PYLON*	3 OR 7	476	757	24
LAU-117/A, A(V)1/A, A(V)3/A + WEAPON PYLON*	3 OR 7	130	411	20
LAU-118(V)4/A + WEAPON PYLON*	3 OR 7	120	401	17
LAU-129/A LAUNCHER	1 OR 9	0	87	1
LAU-129/A LAUNCHER + ADAPTER (16S301)	2,3,7, OR 8	0	113	6
TER (16S1750) + WEAPON PYLON*	3,4,6, OR 7	117 (123**)	398 (404**)	24
TER (66J45517) + WEAPON PYLON*	3,4,6, OR 7	93 (99**)	374 (380**)	24
WEAPON PYLON* (16S1700)	3,4,6, OR 7	0	281	15

*INCLUDES MAU-12C/A, D/A.
**WEIGHT IF BDU-33 ADAPTERS ARE INSTALLED.

Figure A1-1. (Sheet 2)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
A/A 37U-36:				
TARGET STOWED	3 OR 7	PYLON	903	39
TARGET DEPLOYED	3 OR 7	PYLON	–	204
TOW REEL ONLY (TARGET/CABLE RELEASED)	3 OR 7	PYLON	495	29
AGM-65A, B	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1/A, A(V)3/A	464	13/8
AGM-65D	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1/A, A(V)3/A	493	13/8
AGM-65G	3 OR 7	LAU-117/A, A(V)1/A, A(V)3/A	672	8
AGM-84D-1	3 OR 7	PYLON WITH HIAK	1172	10
AGM-88B	3 OR 7	LAU-118(V)4/A	770	8
AIM-9P, P-1	1 OR 9	LAUNCHER	166	4*
AIM-9P-2, P-3, P-4, P-5, N, N-3	1 OR 9	LAUNCHER	178	4*
AIM-9L, M, S	1 OR 9	LAUNCHER	195	4*
AIM-9P, P-1	2,3,7, OR 8	LAUNCHER + ADAPTER	166	5
AIM-9P-2, P-3, P-4, P-5, N, N-3	2,3,7, OR 8	LAUNCHER + ADAPTER	178	5
AIM-9L, M, S	2,3,7, OR 8	LAUNCHER + ADAPTER	195	5
AIM-120B	1 OR 9	LAUNCHER	341	0
AIM-120B	2,3,7, OR 8	LAUNCHER + ADAPTER	341	4
AN/ASQ:				
-T-17 (P4A)	1 OR 9	LAUNCHER	122	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	122	3
-T-20 (P4AX)	1 OR 9	LAUNCHER	123	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	123	3
-T-25 (P4AM)	1 OR 9	LAUNCHER	125	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	125	3
ATM-84D-1	3 OR 7	PYLON WITH HIAK	117	10

* USED FOR REMOVING WINGTIP AIM-9 MISSILE SINCE BASIC AIRCRAFT CONFIGURATION INCLUDES AIM-9'S AT STATIONS 1 AND 9. USING DRAG INDEX ZERO GIVES SLIGHTLY CONSERVATIVE RESULTS WITHOUT TIP MISSILES.

** USED FOR REPLACING WINGTIP AIM-9 MISSILE. DRAG INDEX IS 2 LESS THAN AIM-9 MISSILE AT STATION 1 OR 9.

Figure A1-1. (Sheet 3)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
BDU-33B/B, D/B	3,4,6, OR 7	TER	24	1
BDU-50/B, A/B	3,4,6, OR 7	PYLON/TER	510	5/9
BL-755 MK 2	3,4,6, OR 7	PYLON/TER	610	19/23
BLU-107/B	3,4,6, OR 7	PYLON/TER	482	5/8
BLU-109/B	3 OR 7	PYLON	2020	12
CATM-84D-2	3 OR 7	PYLON WITH HIAK	1161	10
CATM-88B (WITH WINGS AND FINS)	3 OR 7	LAU-118(V)4/A	795	8
CATM-88B (WITHOUT WINGS AND FINS)	3 OR 7	LAU-118(V)4/A	733	8
CATM-120A (107), B (106)	1 OR 9	LAUNCHER	345	0
CATM-120A (107), B (106)	2,3,7, OR 8	LAUNCHER + ADAPTER	345	4
CBU-52B/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	785	20/24
CBU-58/B, A/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	800	20/24
CBU-71/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	800	20/24
CBU-87/B (SUU-65/B)	3,4,6, OR 7	PYLON/TER	950	18/22
GBU-10/B, A/B, C/B, D/B, E/B, F/B	3,4,6, OR 7	PYLON	2052	15
GBU-10G/B, H/B, J/B	3,4,6, OR 7	PYLON	2135	17
GBU-12/B, A/B, B/B, C/B, D/B, E/B	3,4,6, OR 7	PYLON	611	7
GBU-12B/B, C/B, D/B, E/B	3 OR 7	TER	611	10
GBU-24/B	3,4,6, OR 7	PYLON	2306	17
GBU-24A/B	3,4,6, OR 7	PYLON	2354	20
ITM-88B	3 OR 7	LAU-118(V)4/A	770	8
IRIS-T	2,3,7, OR 8	LAUNCHER + ADAPTER	198	4
LANTIRN POD:				
NAVIGATION	5L	PYLON	429*	32*
TARGETING	5R	PYLON	553	19

*WITH PYLON.

Figure A1-1. (Sheet 4)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
LAU-3/A, B/A, C/A, D/A ROCKET LAUNCHER WITH:				
(19) M151	3,4,6, OR 7	PYLON/TER	496	14/20
(19) M156	3,4,6, OR 7	PYLON/TER	496	14/20
(19) MK 1	3,4,6, OR 7	PYLON/TER	418	14/20
(19) MK 5	3,4,6, OR 7	PYLON/TER	418	14/20
FIRED OUT (NO FWD FAIRING)	3,4,6, OR 7	PYLON/TER	76	26/39
EMPTY WITH FWD FAIRING	3,4,6, OR 7	PYLON/TER	78	14/20
LAU-68A/A, B/A ROCKET LAUNCHER WITH:				
(7) M151	3 OR 7	TER	215	9
(7) M156	3 OR 7	TER	215	9
(7) MK 1	3 OR 7	TER	194	9
(7) MK 5	3 OR 7	TER	194	9
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	67	17
EMPTY WITH FWD FAIRING	3 OR 7	TER	68	9
LAU-131/A ROCKET LAUNCHER-WITH:				
(7) M151	3 OR 7	TER	223	9
(7) M156	3 OR 7	TER	223	9
(7) MK 1	3 OR 7	TER	195	9
(7) MK 5	3 OR 7	TER	195	9
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	68	18
EMPTY WITH FWD FAIRING	3 OR 7	TER	69	9
LAU-5003/A ROCKET LAUNCHER-WITH:				
(19) CM-151 (CRV7)	3 OR 7	TER	530	20
(19) RA-79 (CRV7)	3 OR 7	TER	658	20
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	76	39
EMPTY WITH FWD FAIRING	3 OR 7	TER	78	20

Figure A1-1. (Sheet 5)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
M129E2	3,4,6, OR 7	PYLON	229	16
MK 20 MOD 3,4	3,4,6, OR 7	PYLON/TER	490	11/14
MK 82 AIR	3,4,6, OR 7	PYLON/TER	540	7/11
MK 82 LDGP	3,4,6, OR 7	PYLON/TER	510	5/9
MK 82 (SNAKEYE)	3,4,6, OR 7	PYLON/TER	550	7/11
MK 84 AIR	3,4,6, OR 7	PYLON	2010	10
MK 84 LDGP	3,4,6, OR 7	PYLON	1970	9
MXU-648A/A, C/A (TRAVEL POD) (MAX CARGO WT IS 300 LB)	3,4,5,6, OR 7	PYLON/TER	108 (EMPTY)	10/10
SUU-20A/A, B/A WITH:			(A/A) (B/A)	
(6) BDU-33B/B, D/B	3,4,6, OR 7	PYLON	474 420	14
(6) MK 106	3,4,6, OR 7	PYLON	360 306	14
(4) M151	3,4,6, OR 7	PYLON	414 360	14
(6) BDU-33B/B, D/B+(4) M151	3,4,6, OR 7	PYLON	558 504	14
(6) MK 106+(4) M151	3,4,6, OR 7	PYLON	444 390	14
EMPTY	3,4,6, OR 7	PYLON	330 276	12
SUU-5003A/A, B/A WITH:			(A/A) (B/A)	
(6) BDU-33B/B, D/B	3,4,6, OR 7	PYLON	583 546	14
(6) MK 106	3,4,6, OR 7	PYLON	469 432	14
(4) CM-151 (CRV7)	3,4,6, OR 7	PYLON	561 524	14
(6) BDU-33B/B, D/B+(4) CM-151	3,4,6, OR 7	PYLON	705 668	14
(6) MK 106+(4) CM-151	3,4,6, OR 7	PYLON	591 554	14
(4) RA-79T (RA-82) (CRV7)	3,4,6, OR 7	PYLON	547 510	14
EMPTY	3,4,6, OR 7	PYLON	439 402	12

Figure A1-1. (Sheet 6)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
TGM-65A, B	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1A, A(V)3/A	447	13/8
TGM-65D, G	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1A, A(V)3/A	474	13/8
300-GALLON TANK (EMPTY/FULL):				
NO STORES AT 4 OR 6	5	PYLON	392*/2432	15
STORES AT 4 AND 6	5	PYLON	392*/2432	18
370-GALLON TANK (EMPTY/FULL):				
NO STORES AT 3 OR 7	4 OR 6	NONE	531*/3047	27
AIM-9'S AT 3 OR 7	4 OR 6	NONE	531*/3047	27
SINGLE RACKS OR STORES AT 3 OR 7	4 OR 6	NONE	531*/3047	35
MULTIPLE STORES AT 3 OR 7	4 OR 6	NONE	531*/3047	39
600-GALLON TANK (EMPTY/FULL):				
NO STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	20
AIM-9'S AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	20
SINGLE RACKS OR STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	30
MULTIPLE STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	32

300-/370-/600-GALLON TANK WEIGHTS BASED ON JP-8.
*INCLUDES UNUSABLE FUEL.

Figure A1-1. (Sheet 7)

Position Error Correction — Airspeed and Altitude

DATA BASIS FLIGHT TEST

NOTE: SUBTRACT CORRECTION FROM DESIRED CONDITION TO OBTAIN INDICATOR READING.

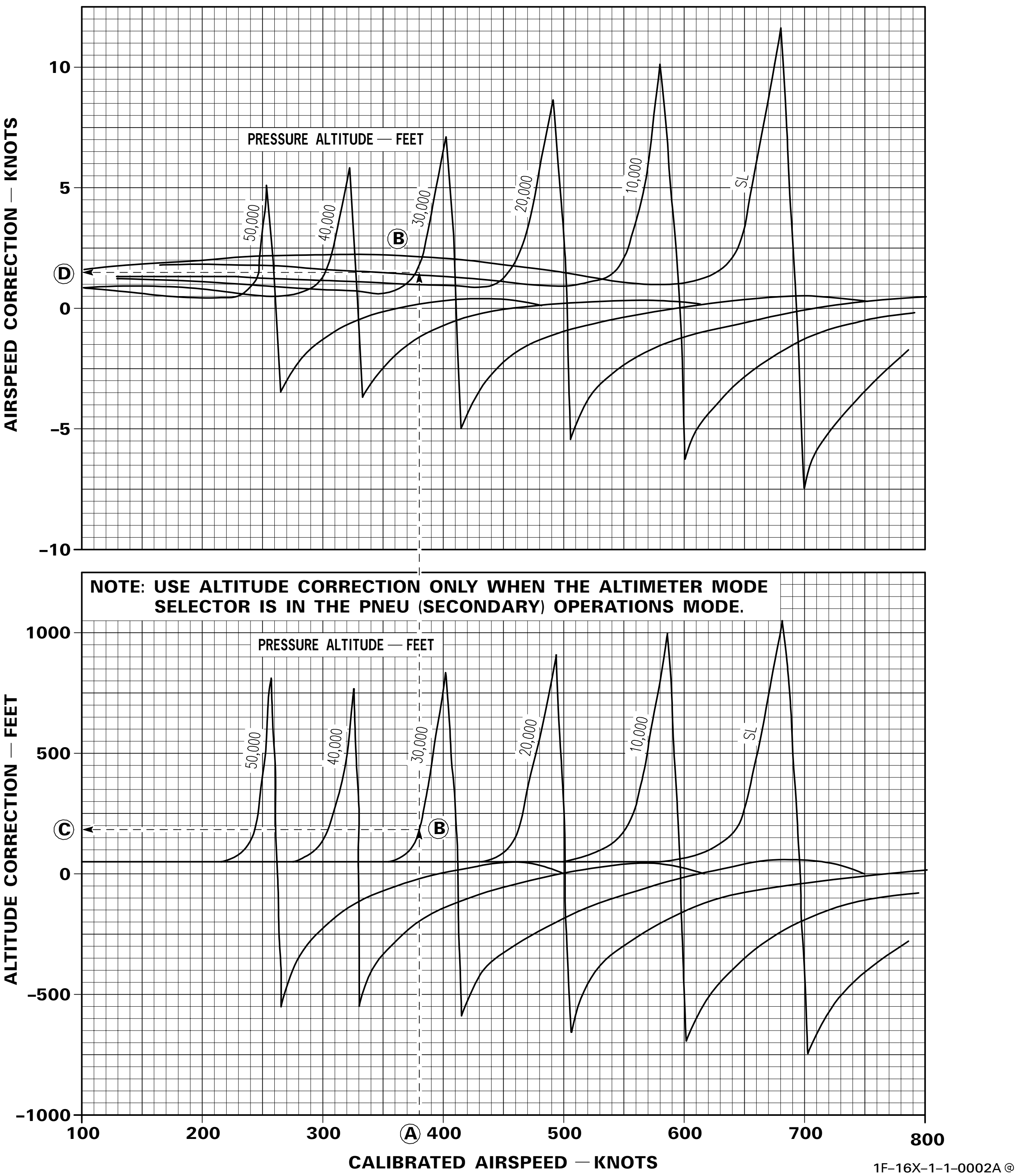


Figure A1-2. (Sheet 1)

Position Error Correction — Mach Number

DATA BASIS FLIGHT TEST

NOTE: SUBTRACT FROM THE TRUE MACH TO OBTAIN MACH INDICATOR READING.

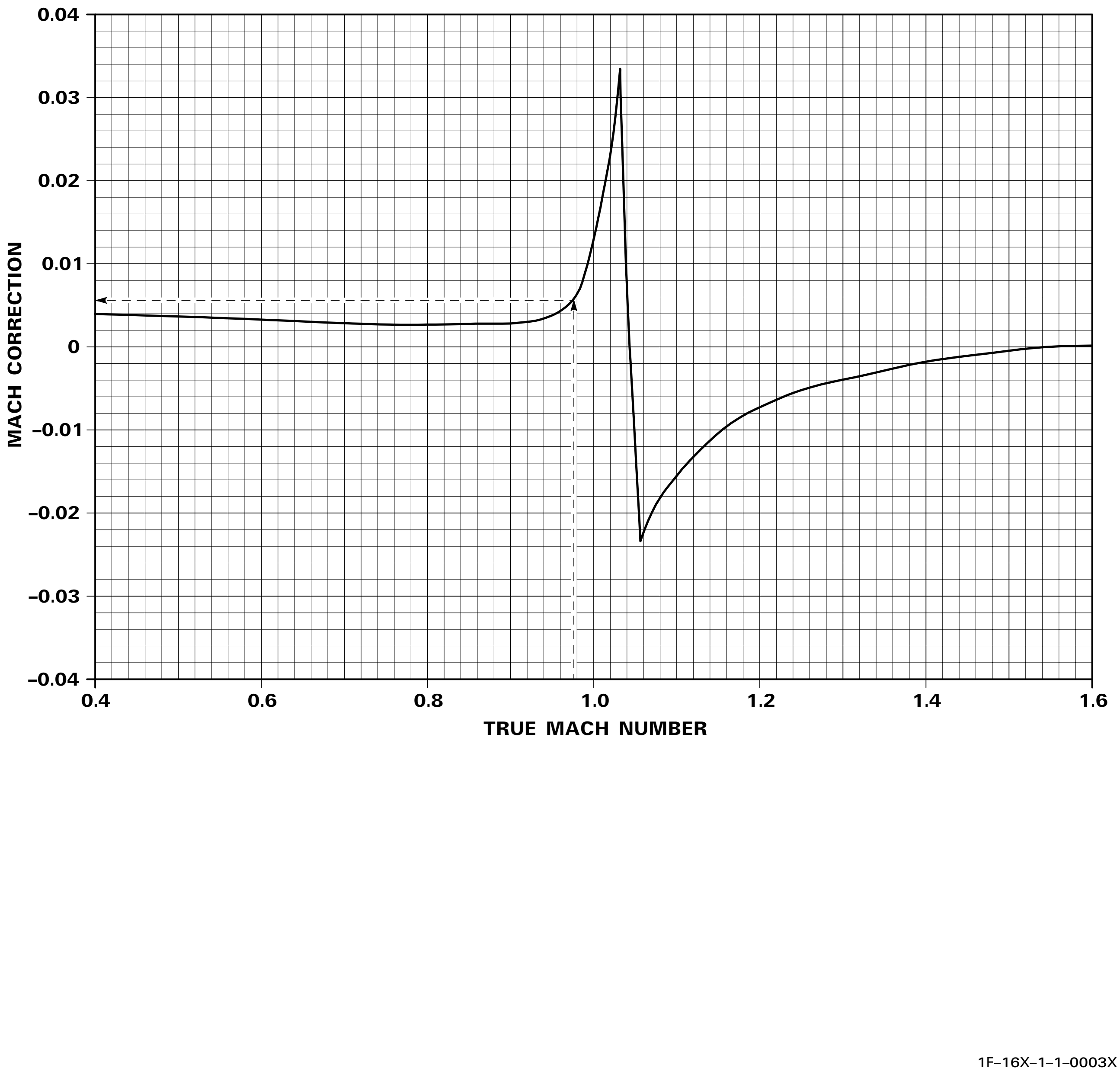
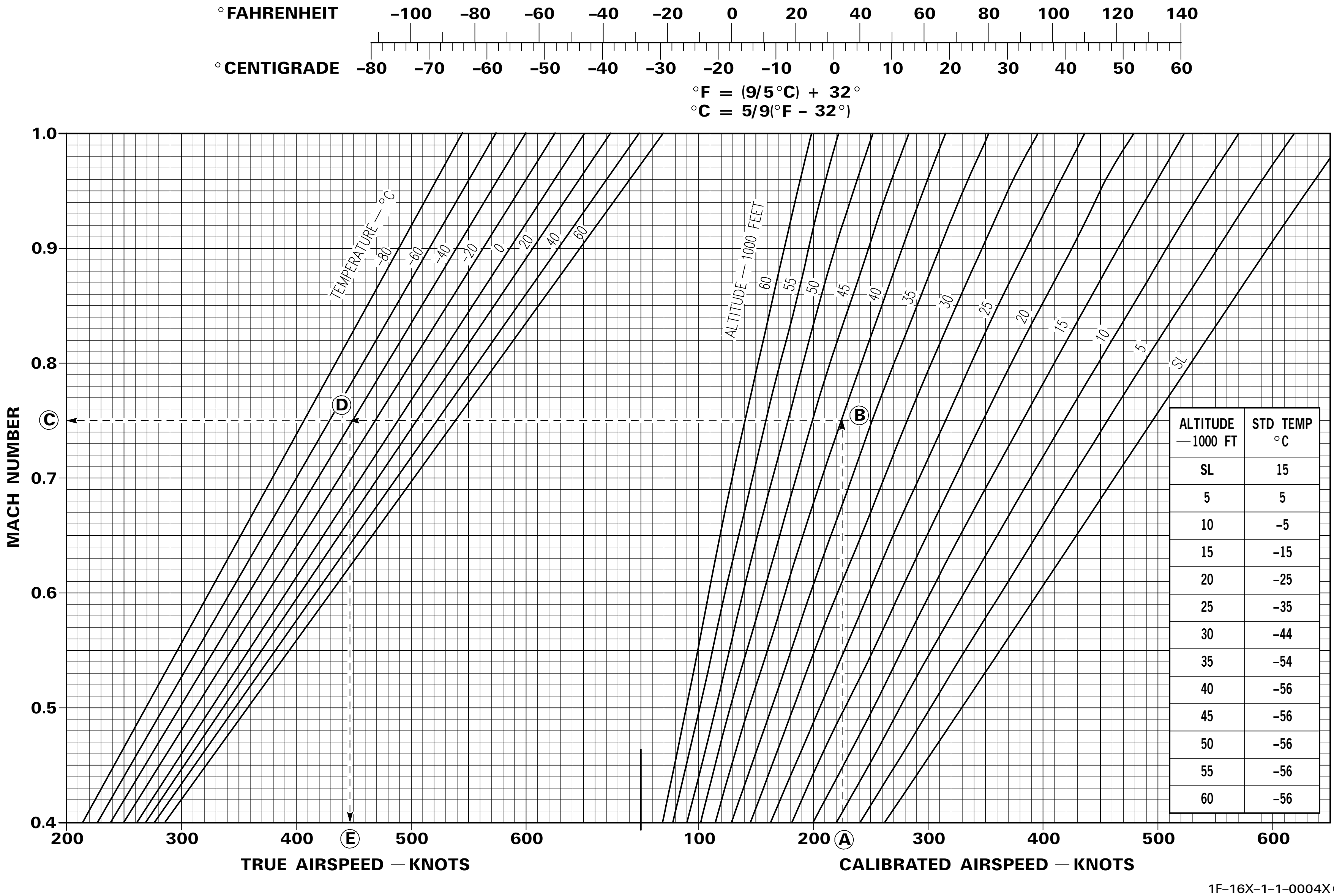


Figure A1-2. (Sheet 2)

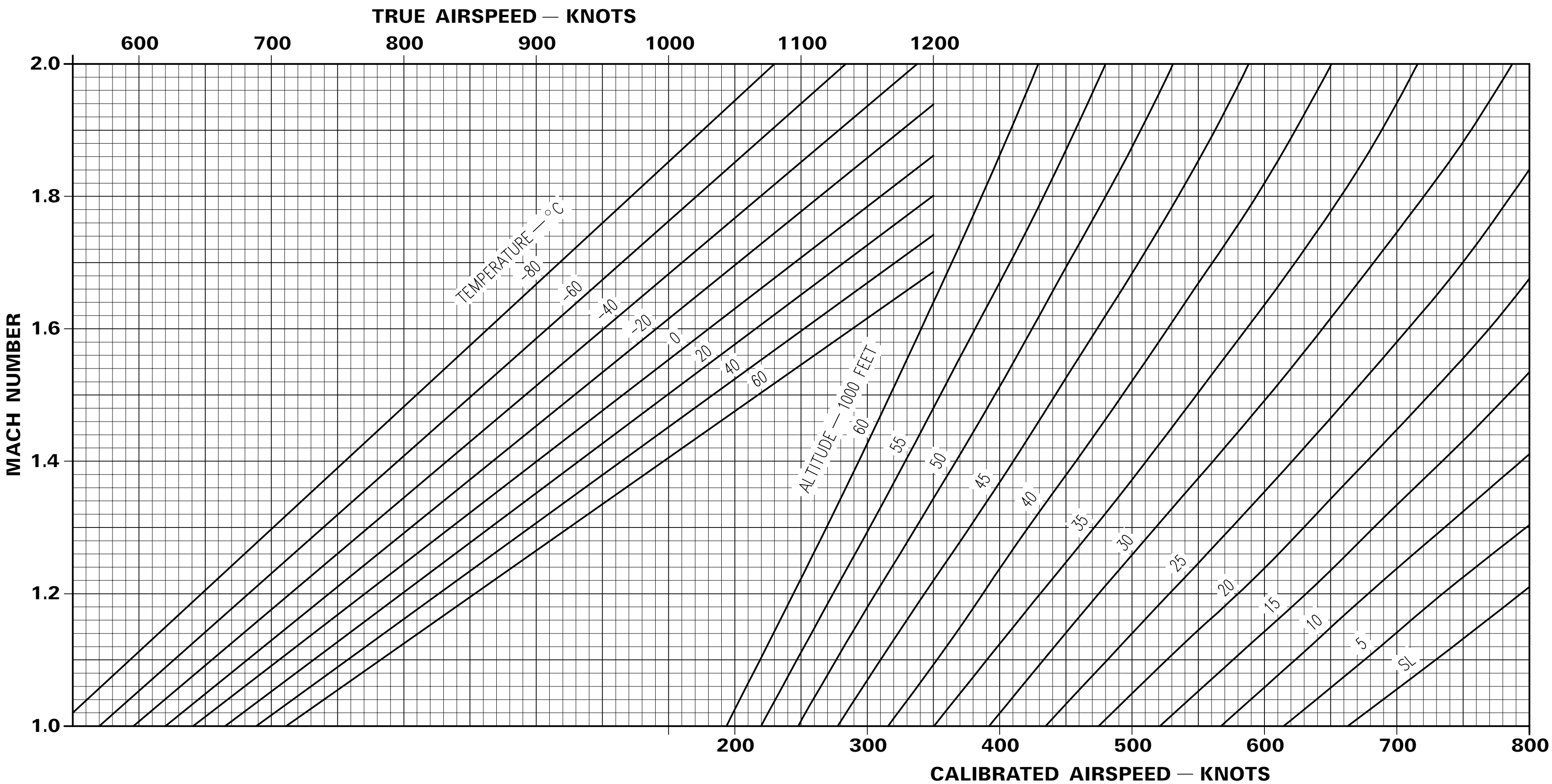
Airspeed Conversion



ALTITUDE —1000 FT	STD TEMP °C
SL	15
5	5
10	-5
15	-15
20	-25
25	-35
30	-44
35	-54
40	-56
45	-56
50	-56
55	-56
60	-56

Figure A1-3. (Sheet 1)

Airspeed Conversion



1F–16X–1–1–0005X@

Figure A1-3. (Sheet 2)

Compressibility Correction to Airspeed

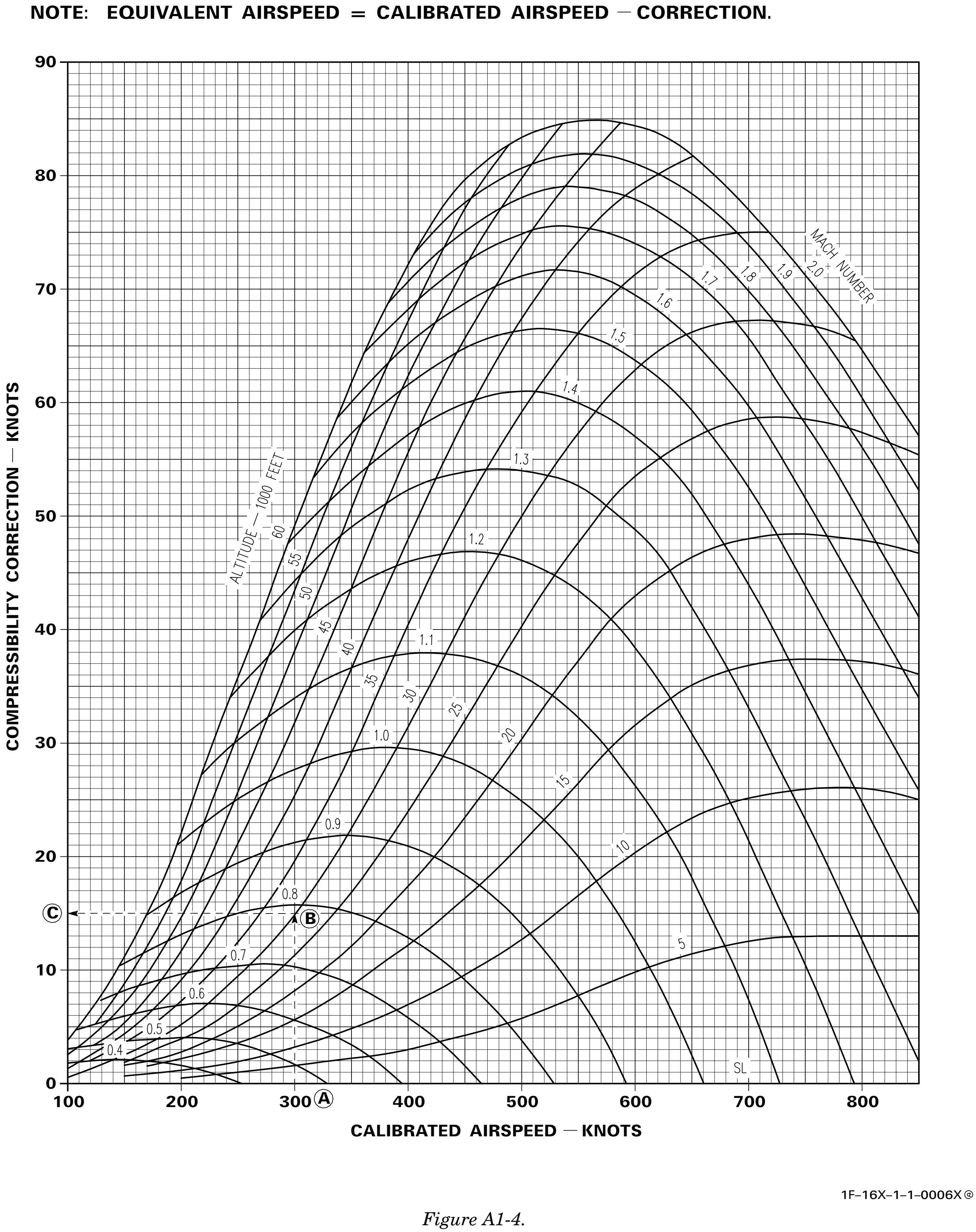


Figure A1-4.

Standard Atmosphere

DATA BASIS US STANDARD ATMOSPHERE, 1966

STANDARD SEA LEVEL AIR:

- **T = 59°F (15°C)**
- **P_o = 29.921 IN. OF HG**
- **W = 0.076475 LB/CU FT**
- **ρ_o = 0.0023769 SLUG/CU FT**
- **1 IN. OF HG = 70.726 LB/SQ FT**
- **1 IN. OF HG = 0.4912 LB/SQ IN.**
- **a_o = 1116.4 FT/SEC**
- **a_o = 661.48 KTS**

ALTITUDE FEET	DENSITY RATIO $\rho/\rho_o = \sigma$	$1/\sqrt{\sigma}$	AIR TEMPERATURE		SPEED OF SOUND KNOTS	PRESSURE	
			DEG F	DEG C		IN. OF HG	RATIO $P/P_o = \delta$
−2000	1.0598	0.9714	66.132	18.962	665.98	32.15	1.0745
−1000	1.0296	0.9855	62.566	16.981	663.73	31.02	1.0368
0	1.0000	1.0000	59.000	15.000	661.48	29.92	1.0000
1000	0.9711	1.0148	55.434	13.019	659.23	28.86	0.9644
2000	0.9428	1.0299	51.868	11.038	656.92	27.82	0.9298
3000	0.9151	1.0454	48.302	9.057	654.60	26.82	0.8962
4000	0.8881	1.0611	44.735	7.075	652.35	25.84	0.8637
5000	0.8617	1.0773	41.169	5.094	650.04	24.90	0.8320
6000	0.8359	1.0938	37.603	3.113	647.72	23.98	0.8014
7000	0.8106	1.1107	34.037	1.132	645.34	23.09	0.7716
8000	0.7860	1.1279	30.471	−0.849	643.02	22.22	0.7428
9000	0.7620	1.1456	26.905	−2.831	640.71	21.39	0.7148
10,000	0.7385	1.1637	23.338	−4.812	638.33	20.58	0.6877
11,000	0.7156	1.1822	19.772	−6.793	635.95	19.79	0.6614
12,000	0.6932	1.2011	16.206	−8.774	633.63	19.03	0.6360
13,000	0.6713	1.2205	12.640	−10.756	631.25	18.29	0.6113
14,000	0.6500	1.2403	9.074	−12.737	628.87	17.58	0.5875
15,000	0.6292	1.2606	5.508	−14.718	626.42	16.89	0.5643
16,000	0.6090	1.2815	1.941	−16.699	624.04	16.22	0.5420
17,000	0.5892	1.3028	−1.625	−18.681	621.59	15.57	0.5203
18,000	0.5699	1.3246	−5.191	−20.662	619.21	14.94	0.4994
19,000	0.5511	1.3470	−8.757	−22.643	616.76	14.34	0.4791
20,000	0.5328	1.3700	−12.323	−24.624	614.32	13.75	0.4595
21,000	0.5150	1.3935	−15.889	−26.605	611.87	13.18	0.4406
22,000	0.4976	1.4176	−19.456	−28.587	609.42	12.64	0.4223
23,000	0.4807	1.4424	−23.022	−30.568	606.91	12.11	0.4046
24,000	0.4642	1.4678	−26.588	−32.549	604.46	11.60	0.3876
25,000	0.4481	1.4938	−30.154	−34.530	601.95	11.10	0.3711
26,000	0.4325	1.5206	−33.720	−36.511	599.43	10.63	0.3552
27,000	0.4173	1.5480	−37.286	−38.492	596.92	10.17	0.3398
28,000	0.4025	1.5762	−40.852	−40.473	594.41	9.725	0.3250
29,000	0.3881	1.6052	−44.419	−42.455	591.89	9.297	0.3107

Figure A1-5. (Sheet 1)

Standard Atmosphere

DATA BASIS US STANDARD ATMOSPHERE, 1966

STANDARD SEA LEVEL AIR:

- **T = 59°F (15°C)**
- **P_o = 29.921 IN. OF HG**
- **W = 0.076475 LB/CU FT**
- **ρ_o = 0.0023769 SLUG/CU FT**
- **1 IN. OF HG = 70.726 LB/SQ FT**
- **1 IN. OF HG = 0.4912 LB/SQ IN.**
- **a_o = 1116.4 FT/SEC**
- **a_o = 661.48 KTS**

ALTITUDE FEET	DENSITY RATIO $\rho/\rho_o = \sigma$	$1/\sqrt{\sigma}$	AIR TEMPERATURE		SPEED OF SOUND KNOTS	PRESSURE	
			DEG F	DEG C		IN. OF HG	RATIO $P/P_o = \delta$
30,000	0.3741	1.6349	−47.985	−44.436	589.31	8.885	0.2970
31,000	0.3605	1.6654	−51.551	−46.417	586.80	8.488	0.2837
32,000	0.3473	1.6968	−55.117	−48.398	584.22	8.106	0.2709
33,000	0.3345	1.7291	−58.683	−50.379	581.64	7.737	0.2586
34,000	0.3220	1.7623	−62.249	−52.361	579.06	7.382	0.2467
35,000	0.3099	1.7964	−65.816	−54.342	576.41	7.041	0.2353
36,089*	0.2971	1.8347	−69.700	−56.500	573.57	6.683	0.2234
37,000	0.2844	1.8753	−69.700	−56.500	573.57	6.397	0.2138
38,000	0.2710	1.9209	−69.700	−56.500	573.57	6.097	0.2038
39,000	0.2583	1.9677	−69.700	−56.500	573.57	5.811	0.1942
40,000	0.2462	2.0155	−69.700	−56.500	573.57	5.538	0.1851
41,000	0.2346	2.0645	−69.700	−56.500	573.57	5.278	0.1764
42,000	0.2236	2.1148	−69.700	−56.500	573.57	5.030	0.1681
43,000	0.2131	2.1662	−69.700	−56.500	573.57	4.794	0.1602
44,000	0.2031	2.2189	−69.700	−56.500	573.57	4.569	0.1527
45,000	0.1936	2.2728	−69.700	−56.500	573.57	4.355	0.1455
46,000	0.1845	2.3281	−69.700	−56.500	573.57	4.151	0.1387
47,000	0.1758	2.3848	−69.700	−56.500	573.57	3.956	0.1322
48,000	0.1676	2.4428	−69.700	−56.500	573.57	3.770	0.1260
49,000	0.1597	2.5022	−69.700	−56.500	573.57	3.563	0.1201
50,000	0.1522	2.5630	−69.700	−56.500	573.57	3.425	0.1145
51,000	0.1451	2.6254	−69.700	−56.500	573.57	3.264	0.1091
52,000	0.1383	2.6892	−69.700	−56.500	573.57	3.111	0.1040
53,000	0.1318	2.7546	−69.700	−56.500	573.57	2.965	0.09909
54,000	0.1256	2.8216	−69.700	−56.500	573.57	2.826	0.09444
55,000	0.1197	2.8903	−69.700	−56.500	573.57	2.693	0.09001
56,000	0.1141	2.9606	−69.700	−56.500	573.57	2.567	0.08578
57,000	0.1087	3.0326	−69.700	−56.500	573.57	2.446	0.08176
58,000	0.1036	3.1063	−69.700	−56.500	573.57	2.331	0.07792
59,000	0.09877	3.1819	−69.700	−56.500	573.57	2.222	0.07426
60,000	0.09414	3.2593	−69.700	−56.500	573.57	2.118	0.07078
61,000	0.08972	3.3386	−69.700	−56.500	573.57	2.018	0.06746
62,000	0.08551	3.4198	−69.700	−56.500	573.57	1.924	0.06429
63,000	0.08150	3.5029	−69.700	−56.500	573.57	1.833	0.06127
64,000	0.07767	3.5881	−69.700	−56.500	573.57	1.747	0.05840
65,000	0.07403	3.6754	−69.700	−56.500	573.57	1.665	0.05566

*Tropopause

Figure A1-5. (Sheet 2)

Temperature Correction for Compressibility

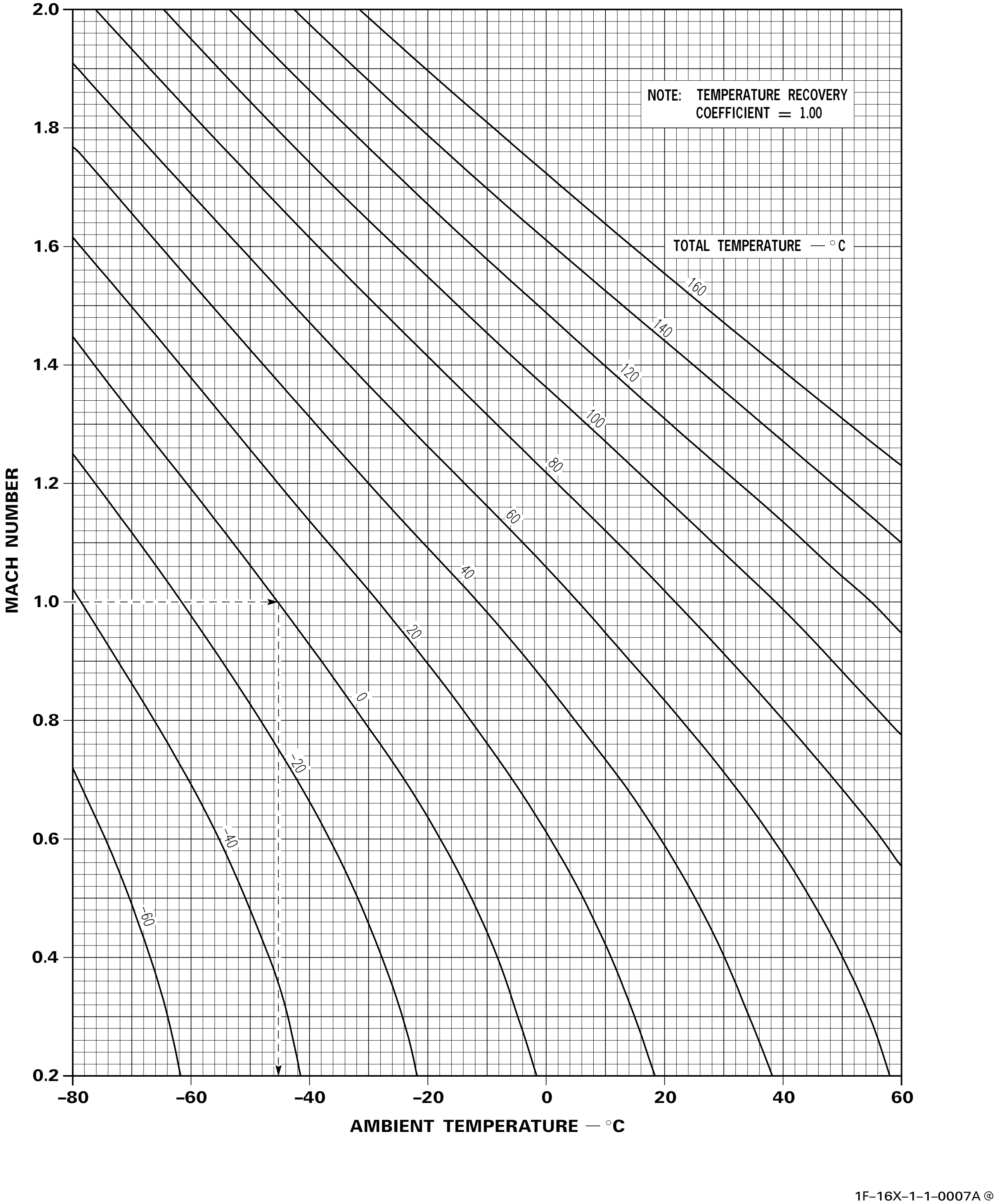


Figure A1-6.

Angle of Attack

DATA BASIS FLIGHT TEST

CONFIGURATION:
- LG — UP
- ALL DRAG INDEXES

CONDITIONS:
- 1G LEVEL FLIGHT
- NO THRUST EFFECTS INCLUDED

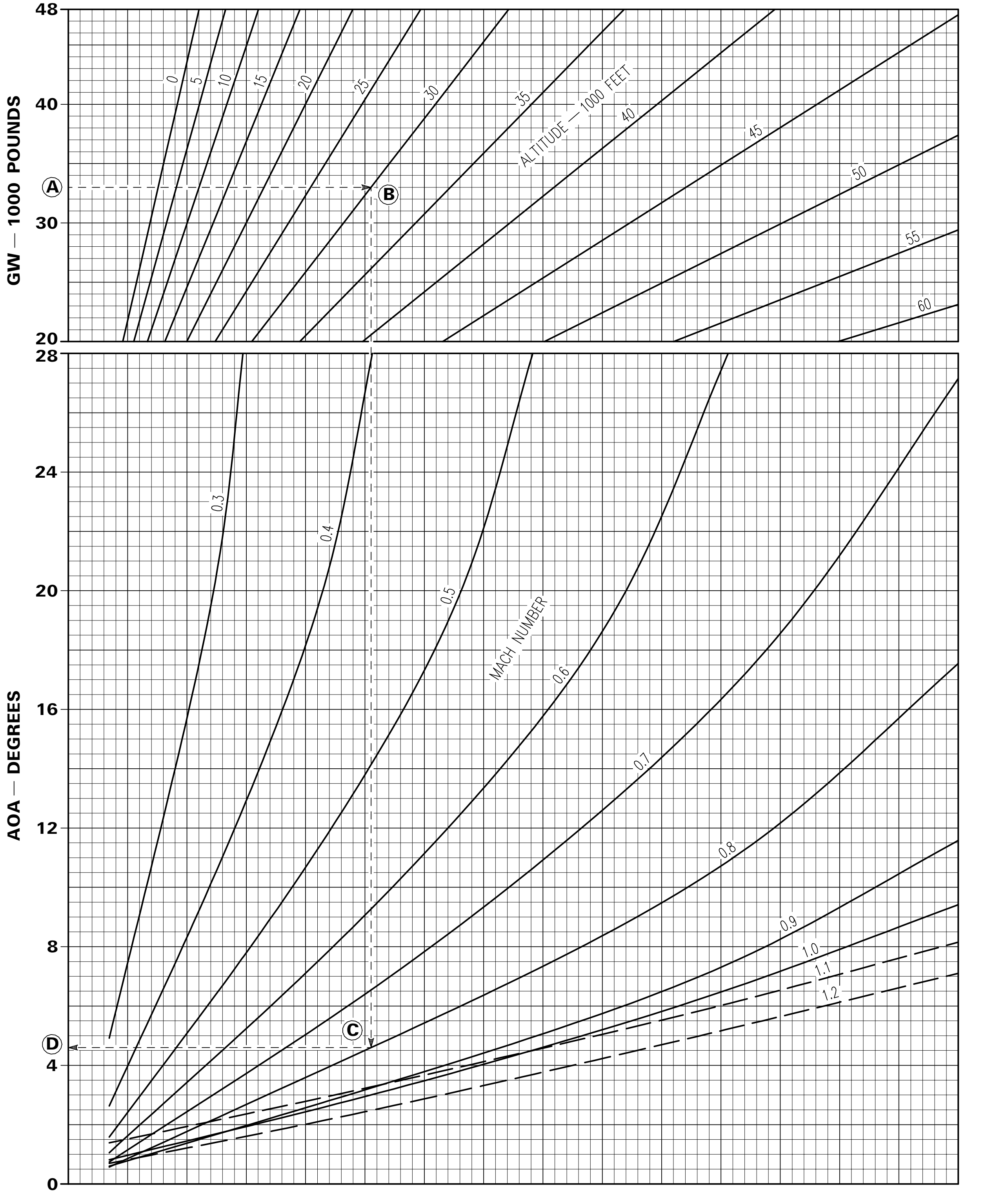


Figure A1-7.

Available Load Factor

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- LG — UP

CONDITIONS:
- ALL TEMPERATURES
- ALL THROTTLE SETTINGS

NOTES:
- REFER TO SECTION V FOR G LIMITATIONS.
- KCAS ON 9.0G LIMITER IS INACCURATE. (REFER TO FIGURE A1–3.)

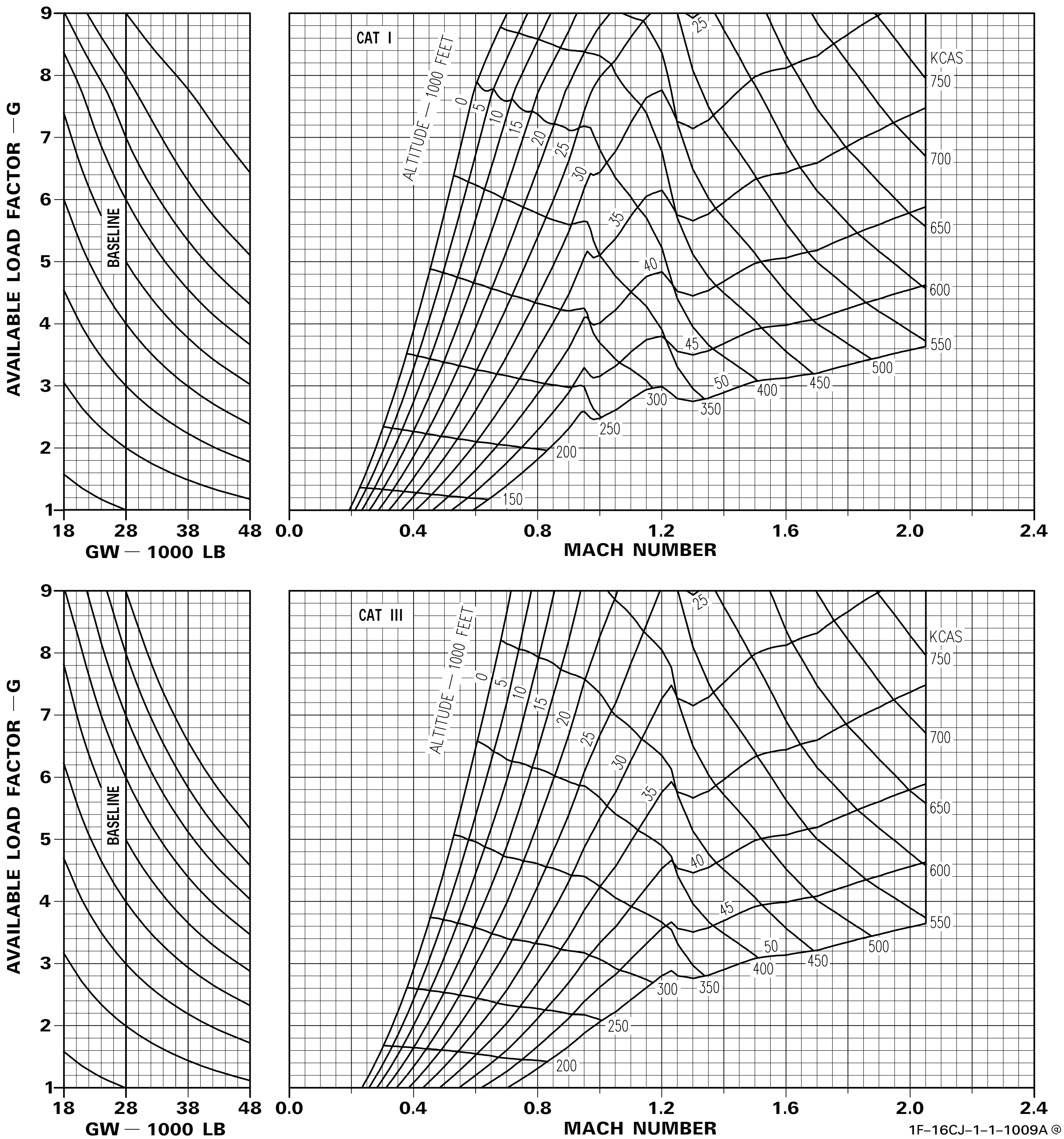


Figure A1-8.

Turn Conversion

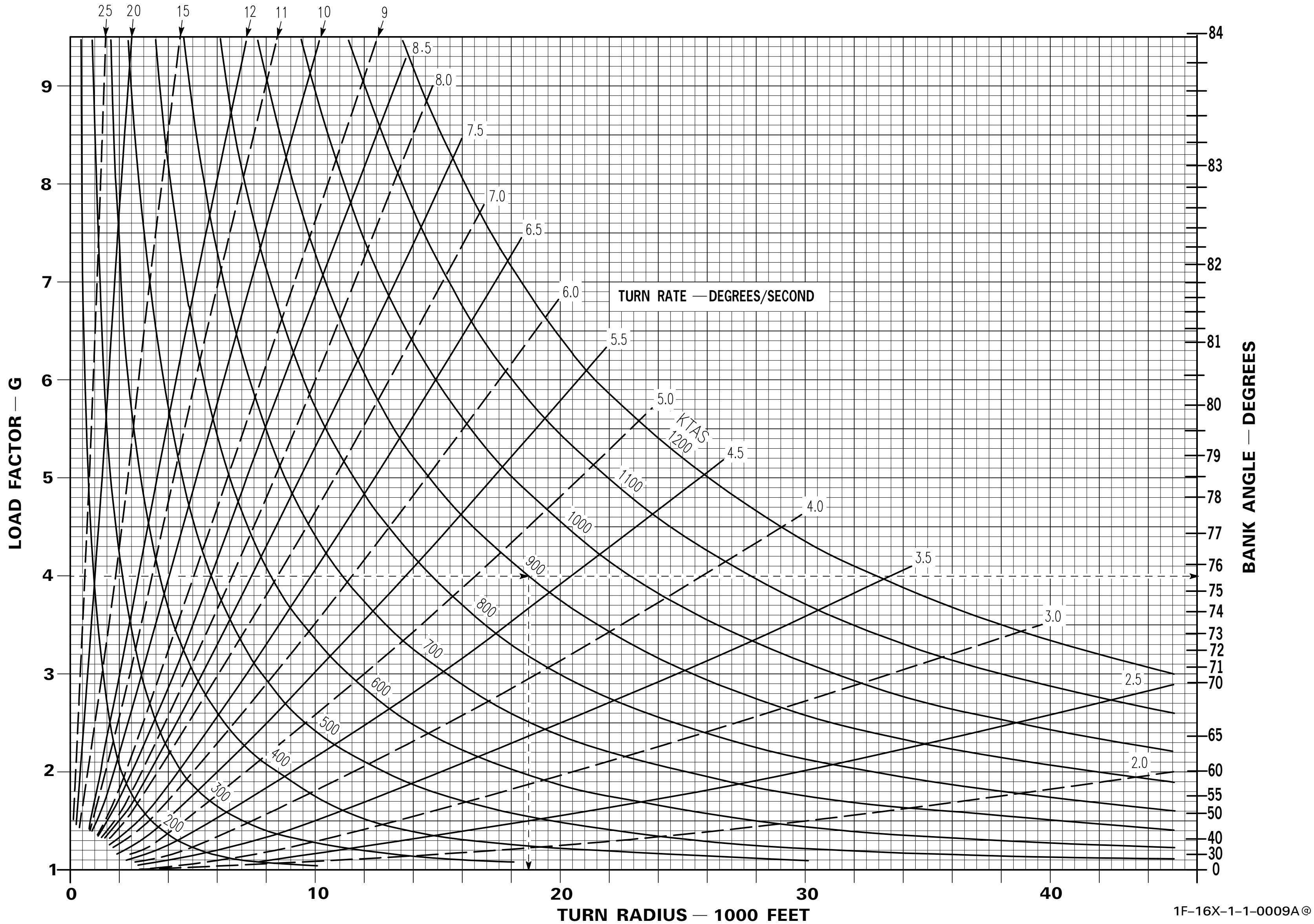


Figure A1-9.

Ground Vehicle Friction Reading–To–RCR Conversion

NOTES:

- **IN MANY AREAS, GROUND VEHICLE FRICTION READING IS THE ONLY AVAILABLE MEASURE FOR RUNWAY BRAKING ACTION.**
- **NORMALLY THE GROUND VEHICLE FRICTION READING, ALSO REFERRED TO AS BRAKING ACTION COEFFICIENT, IS GIVEN AS WHOLE NUMBERS, NOT AS DECIMALS (I.E., 40 INSTEAD OF 0.40).**

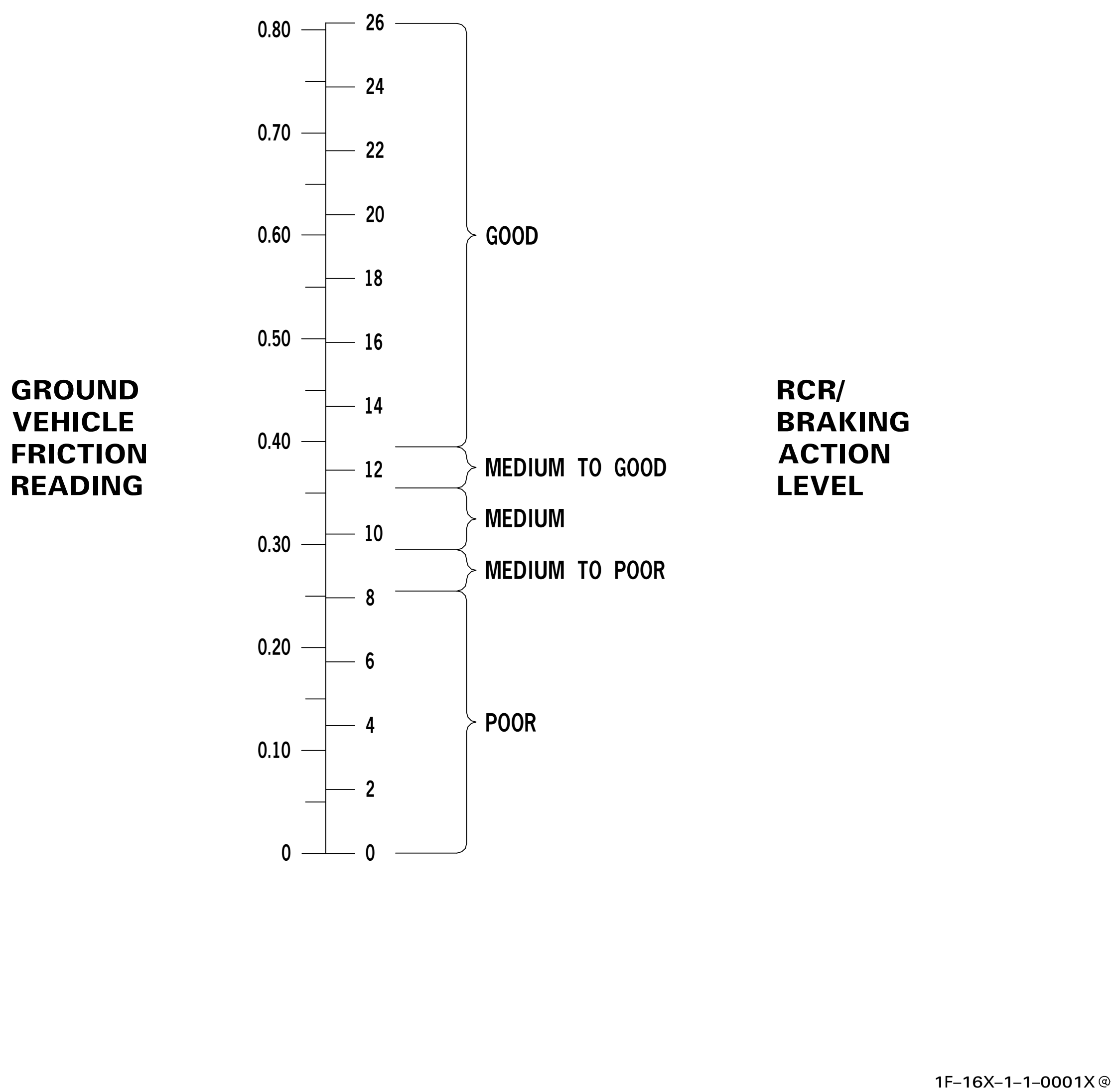


Figure A1-10.

PART 2 — TAKEOFF

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LIST OF CHARTS

TAKEOFF DATA

All data needed for takeoff planning is presented in this section. Takeoff data is presented for MIL and MAX AB throttle settings. For the purpose of Part 2, MIL thrust is called non-AB and MAX AB thrust is called AB. All data is based on normal flap positions (LEF's are at – 2 degrees and TEF's are at 20 degrees down while weight is on the MLG). Rotation speed, takeoff speed, ground run distance, acceleration check speed, maximum refusal speed, and crosswind data may be determined from these charts. Effects of wind, temperature, pressure altitude, runway slope and length, drag index, and RCR are included on appropriate charts.

DEFINITIONS OF TERMS

Takeoff factor – A computed number which is a function of engine thrust, temperature, and altitude. It is used as a control parameter for most charts in this section.

Rotation speed – Airspeed at which rotation to liftoff attitude should be started.

Takeoff speed – Airspeed at which the main tires leave the ground.

Takeoff ground run distance (also takeoff distance) – Ground run in feet from brake release to takeoff speed.

Refusal speed – Maximum airspeed that can be attained and still stop on remaining runway should takeoff be aborted.

Minimum AB blowout speed – Minimum airspeed at which an AB blowout can occur and still reach takeoff speed within the remaining runway length using non-AB thrust.

Runway slope – Change in runway elevation divided by runway length multiplied by 100 (expressed in percent uphill or downhill).

Aerodynamic braking (three-point attitude) – Use of fully opened speedbrakes and maximum horizontal tail deflection (without raising nose tire from runway) to increase deceleration. (Data base for aborted takeoff.)

Maximum effort braking – A single continuous wheel brake application using maximum pedal pressure consistent with maintaining directional control (anti-skid on) in conjunction with aerodynamic braking and drag chute.

DATA BASIS FOR CHARTS

Estimated aerodynamic and propulsion data based on wind tunnel and flight test results was used to generate the information presented in this section. Changes in LEF's positions and engine bleed requirements for weight on or off LG have been accounted for, as appropriate. Assumptions and approximations made during the construction of each chart are discussed along with the chart.

TAKEOFF PLANNING

Careful takeoff planning is essential from a standpoint of flight safety and mission success. Proper planning will permit maximum use of the capability of the aircraft to take off with heavy payloads while maintaining adequate safety margins. Takeoff planning comprises the following:

1. Determine aircraft configuration (total aircraft takeoff GW and drag index).

2. Obtain runway conditions for expected takeoff time (pressure altitude, temperature, windspeed, wind direction, length, slope, etc.).

3. Compute appropriate data.

This information will permit decisions to be made regarding downloading or continuing or aborting takeoff in the event of an emergency. Each chart is discussed in detail in the following paragraphs. An example takeoff planning problem is worked in conjunction with the discussion. The following typical aircraft and field information is normally obtained before using the charts:

- Takeoff GW (aircraft operating weight plus fuel, ammo, and stores) = 33,000 pounds (Allow for ground operation fuel consumption; refer to Part 3) (Normal taxi operations require approximately 25 pounds of fuel per minute)
- Stores loading = Two AIM-9L missiles at stations 1 and 9, two MK 84 bombs at stations 3 and 7, two 370-gallon fuel tanks at stations 4 and 6
- Takeoff CG = Refer to Weight and Balance Form F (DD Form 365-4)
- Drag index = Refer to T.O. GR1F-16CJ-1-2, STORES LIMITATIONS
- Runway pressure altitude = 2000 feet
- Runway temperature = 42°C
- Runway length = 6000 feet (available length)
- Runway conditions = Dry concrete (RCR = 23)
- Runway slope = 1 percent (uphill)
- Runway wind = 10 knots (headwind)

TAKEOFF FACTOR

The takeoff factor concept of presenting takeoff performance is used to simplify chart presentations. The takeoff factor is a computed number and is common to all charts for a given thrust setting, pressure altitude, and temperature.

REFER TO FIGURE A2-1.

Enter the chart with runway temperature (A). Proceed horizontally to pressure altitude (B) and then vertically down to read MIL takeoff factor (C) or MAX AB takeoff factor (D).

SAMPLE PROBLEM.

A. Runway temperature = 42°C
B. Pressure altitude = 2000 feet
C. MIL takeoff factor = 2.54
D. MAX AB takeoff factor = 1.44

TAKEOFF SPEED

Takeoff and rotation speeds are obtained from figure A2-2.

REFER TO FIGURE A2-2.

Enter chart with takeoff GW (A), proceed vertically to takeoff speed line (B), and proceed horizontally left to takeoff speed (C) for 35 percent CG. Then compute takeoff and rotation speeds for the actual takeoff CG. Next, enter inset at ambient temperature (F), proceed vertically to altitude (G), and then proceed horizontally left to maximum allowable takeoff GW (H).

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	CG	=	37.0 percent
C.	Takeoff speed at 35.0 percent CG	=	170 KIAS
D.	Takeoff speed at 37.0 percent CG: 170 – (0.8 × 2.0)	=	168 KIAS
E.	Rotation speed:		
	• Non-AB	=	158 KIAS
	• AB	=	153 KIAS

Rotation to 8 degrees pitch angle for lift-off increases takeoff speed 8 percent.

D.	Takeoff speed at 37.0 percent CG: 168 × 1.08	=	181 KIAS
E.	Rotation speed:		
	• Non-AB	=	171 KIAS
	• AB	=	166 KIAS
F.	Ambient temperature	=	40° C
G.	Altitude	=	4000 feet
H.	Maximum allowable takeoff GW	=	44,900 pounds

The takeoff GW is within the maximum allowable takeoff GW limit.

For a takeoff GW of 47,000 pounds:

I.	GW	=	47,000 pounds
J.	Takeoff speed	=	206 KIAS
F.	Ambient temperature	=	40° C
G.	Altitude	=	4000 Feet
H.	Maximum allowable takeoff GW	=	44,900 pounds

The takeoff GW is greater than the maximum allowable takeoff GW; therefore, the MLG tire limit speed is exceeded.

For takeoff speed corrections with roll trim other than zero, refer to TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES, this part.

TAKEOFF DISTANCE

Distance from brake release to takeoff speed may be determined from figure A2-3. Because the brakes cannot hold the aircraft when takeoff thrust is applied, takeoff thrust should be selected as quickly as practical after brake release. Thrust buildup to takeoff thrust is considered in the takeoff distance. Effects of GW, CG, drag index, wind, and runway slope are given on the chart.

REFER TO FIGURE A2-3.

Enter the chart with takeoff factor (A), proceed horizontally to GW (B), then vertically down to CG baseline, and follow guideline to CG (C). Proceed downward to drag index baseline and parallel guidelines to drag index (D). Proceed downward to slope baseline and parallel guideline to slope (E); continue to wind baseline, again parallel guidelines to wind (F), and finally proceed down to read takeoff distance (G).

SAMPLE PROBLEM.

A.	Non-AB takeoff factor	=	2.54
B.	GW	=	33,000 pounds
C.	CG	=	35.5 percent
D.	Drag index	=	150
E.	Slope	=	1 percent (uphill)
F.	Wind	=	10 knots (headwind)
G.	Takeoff distance	=	4950 feet

Using an AB takeoff factor of 1.44, takeoff distance is 2664 feet.

Rotation to 8 degrees pitch angle for lift-off increases takeoff distance 18 percent.

G.	Takeoff distance:		
	• Non-AB 4950 × 1.18	=	5841 feet
	• AB 2664 × 1.18	=	3144 feet

Because of the short runway (6000 feet) and high GW combination, MAX AB should be used.

ACCELERATION CHECK SPEED

Airspeed during takeoff ground roll is presented in figure A2-4. Airspeed from start of takeoff roll or between any two points during takeoff roll can be checked. Takeoff thrust should be selected as quickly as practical after brake release in order to minimize distance covered during engine acceleration. Reliable HUD airspeed indications should begin at about 50 knots.

REFER TO FIGURE A2-4.

Enter chart with takeoff factor (A), proceed horizontally to the right to a distance line (B), down to the GW baseline and parallel the nearest weight guideline to GW (C), down to drag index baseline and parallel the nearest guideline to drag index (D), down to wind baseline and parallel nearest guideline to wind (E), down to slope baseline and parallel nearest guideline to slope (F), and finally down to read acceleration check speed (G).

SAMPLE PROBLEM.

A.	Takeoff factor (AB)	=	1.91
B.	Distance from brake release	=	1500 feet
C.	GW	=	33,000 pounds
D.	Drag index	=	150
E.	Wind	=	10 knots (headwind)
F.	Slope	=	1 percent (uphill)
G.	Acceleration check speed	=	126 KIAS

REFUSAL SPEED

Runway conditions have a significant effect on stopping performance. Runway conditions are shown on the chart by representative values of RCR. Refusal speed for dry runway conditions, dry concrete (RCR = 23) and dry (RCR = 16) is presented in figures A2-5 and A2-6, sheet 1. Refusal speed for wet runway conditions, wet concrete (RCR = 18) and wet (RCR = 12) is presented in figures A2-5 and A2-6, sheet 2. Refusal speed for loose snow (RCR = 8) and smooth ice (RCR = 4) is presented in figures A2-5 and A2-6, sheet 3. Data for measured RCR not provided on the charts can be obtained by interpolation. For wet runways, interpolate between wet concrete (RCR = 18) and wet (RCR = 12). For runways with no liquid water present, interpolate between dry concrete (RCR = 23), dry (RCR = 16), snow (RCR = 8), and icy (RCR = 4). If RCR is unknown and runway is wet, use (RCR = 18) for wet concrete and (RCR = 12) for wet asphalt. The wet runway effects only consider the effects of incipient hydroplaning. Actual hydroplaning effects are not shown. Effects of runway length, wind, and slope are also shown. Drag index effects are negligible. Certain heavy GW/low RCR combinations can result in the refusal speed for a heavy GW aircraft being higher than the refusal speed for a light GW aircraft. Three-point aerodynamic braking is used until airspeed is reduced to maximum brake application speed.

Refusal speeds with drag chute are presented in figures A2-7 and A2-8 for dry concrete runways. The drag chute is deployed at refusal speed. Refer to Section V for limits.

REFER TO FIGURE A2-6.

Enter appropriate chart with takeoff factor (A), proceed horizontally left to GW (B) and then vertically up to runway length (C). From there, proceed horizontally right to wind baseline and parallel nearest guideline to wind (D), and then horizontally right to slope baseline and parallel nearest guideline to slope (E). Finally, proceed horizontally right to read refusal speed (dry runway RCR = 23) (F).

SAMPLE PROBLEM.

A.	Takeoff factor (AB)	=	1.91
B.	GW	=	33,000 pounds
C.	Available runway length	=	6000 feet
D.	Wind	=	10 knots (headwind)
E.	Slope	=	1 percent (uphill)
F.	Refusal speed (dry runway)	=	149.5 KIAS

NOTE

Maximum effort braking should be applied when airspeed is below the maximum brake application speed obtained from figure A2-12.

MINIMUM AB BLOWOUT SPEED

An AB takeoff can be safely continued after an AB blowout only if minimum AB blowout speed is attained prior to the blowout. If the engine instruments indicate normal non-AB operation after the blowout at minimum AB blowout speed, the takeoff can be continued and takeoff speed attained within the remaining runway length. Figure A2-9 contains data needed to determine minimum AB blowout speed.

REFER TO FIGURE A2-9.

Enter chart with MAX AB takeoff factor (A), proceed to the right to GW (B), then down to drag baseline and follow guidelines to drag index (C), down to wind baseline and follow guidelines to wind (D), and down to slope baseline and follow guidelines to slope (E). From (E), proceed down to runway length baseline, follow guidelines to runway length (F), and then proceed to the left to GW baseline. Follow guidelines to GW and finally to the left to read minimum MAX AB blowout speed (G).

SAMPLE PROBLEM.

A.	MAX AB takeoff factor	=	1.91
B.	GW	=	33,000 pounds
C.	Drag index	=	150
D.	Wind	=	10 knots (headwind)
E.	Slope	=	1 percent (uphill)
F.	Available runway length	=	4000 feet
G.	Minimum MAX AB blowout speed	=	103 KIAS

If an AB blowout occurs before reaching minimum AB blowout speed, takeoff cannot be continued.

TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES

Roll trim should be set prior to takeoff with asymmetric stores to prevent wing drop. A roll trim input will cause one TEF to be less than full down; therefore, takeoff speed should be increased by 2 knots for each dot of roll trim applied in order to compensate for reduced lift. Takeoff distance increases proportionately to the speed increase. The roll trim required for various combinations of takeoff speed and store asymmetry is shown in figure A2-10.

NOTE

It is possible to exceed the lateral trim authority of the aircraft for an onspeed takeoff with a net asymmetric (rolling) moment less than aircraft takeoff limits.

REFER TO FIGURE A2-10.

Enter chart with corrected takeoff speed (A), proceed upward to asymmetric store weight (B) and horizontally to the store station baseline, and follow the guidelines to the store station at which the asymmetric load is present (C). From (C), proceed horizontally to read dots of roll trim required at (D).

SAMPLE PROBLEM.

A.	Corrected takeoff speed	=	151 KIAS
B.	Asymmetric store weight	=	800 pounds
C.	Asymmetric store station	=	3
D.	Dots of roll trim required	=	Approximately 2, right wing down

TAKEOFF AND LANDING CROSSWIND LIMITS

Figure A2-11 is to be used to convert reported wind direction and windspeed into headwind and crosswind components. Crosswind component limits for takeoff and landing are also shown.

REFER TO FIGURE A2-11.

Enter chart at the point where reported windspeed intersects wind direction relative to runway (A). Pro ceed down to read crosswind (B) and proceed to the left to read headwind (C).

SAMPLE PROBLEM.

A.	Windspeed	=	15 knots
•	Wind direction relative to runway	=	48 degrees
B.	Crosswind	=	11.1 knots
C.	Headwind	=	10 knots

BRAKE ENERGY LIMITS – MAXIMUM EFFORT BRAKING

Heat energy is absorbed in the brake discs when wheel brakes are used. Brake disc temperature increases in direct proportion to the amount of energy absorbed. For normal aircraft operations, almost all the heat energy absorbed during brake usage is temporarily stored in the brake discs and is dissipated during a subsequent cooling period. As an example, the energy absorbed during an approximate 15-second brake application as part of a normal landing is not completely dissipated for more than 1 hour after the aircraft is stopped. The heat energy transferred to the tire/wheel assembly and the brake piston housing causes the temperature of those units to

increase to a peak temperature 10-20 minutes after brake usage. Greater amounts of brake energy absorption cause higher disc temperatures and produce faster heat transfer to the tire/wheel assembly and brake piston housing. Since the strength of the brake discs, tire/wheel assembly, and brake piston housing decreases as the temperature increases, the severity of brake usage that can be safely withstood is dependent on brake component temperatures.

REFER TO FIGURES A2-12 AND A2-13.

Enter chart with GW (A), follow a vertical line downward to brake application speed (B), and proceed horizontally to point (C) at the right of weight/brake application speed plot. From point (C), follow guidelines upward to the right.

To compute the stopping energy, enter chart with runway temperature (D), follow a horizontal line to the left to pressure altitude (E), and then project a line vertically downward to intersection (F) with the line previously constructed from point (C). Proceed horizontally from intersection point (F) to the right to read brake stopping energy (G).

To compute taxi energy component, continue downward projection of vertical line for GW (A) until it intersects taxi speed (H); then proceed horizontally to the right until it intersects the taxi distance (I); then proceed vertically upward to read taxi energy (J).

The cumulative total energy is determined by continuing the projections of the lines for stopping and taxi energy until they intersect (K).

Quick turnaround takeoff capability can be determined by using the SAFE TIRE BEAD TEMPERATURE chart (figure A2-13). Enter with the cumulative total energy absorption (K). Proceed horizontally to right to intersect vertical line representing ambient temperature. This intersection (L) shows no cooling period required.

SAMPLE PROBLEM.

Condition:	Full stop landing followed by 5000 feet taxi
Find:	Total stopping energy
Determine:	Quick turnaround capability

A.	GW	=	23,000 pounds
B.	Brake application speed	=	100 KIAS
D.	Runway temperature	=	80°F
E.	Pressure altitude	=	1000 feet
G.	Stopping energy	=	4.9 million foot-pounds
H.	Taxi speed	=	20 knots groundspeed
I.	Taxi distance	=	5000 feet
J.	Taxi energy	=	0.85 million foot-pounds
K.	Total stopping energy (G + J)	=	5.75 million foot-pounds
L.	Intersection	=	Quick turnaround possible

ABORTED TAKEOFF MAXIMUM BRAKE APPLICATION SPEED

Figure A2-12 can also be used for finding the maximum brake application speed for aborted takeoff considering taxi energy absorbed prior to starting takeoff run. This is accomplished by computing the taxi energy and projecting this value vertically upward to the intersection of the danger zone upper limit (23.5 million foot-pounds per brake). From this intersection, proceed horizontally to the left to the remaining brake energy capacity available for stopping during aborted takeoff. The maximum brake application speed can then be found for the prevailing conditions of GW, pressure altitude, and temperature. If brakes must be applied prior to complete thrust decay to idle (approximately 4 seconds), maximum brake application speed must be reduced by 20 KIAS.

Takeoff Factor

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

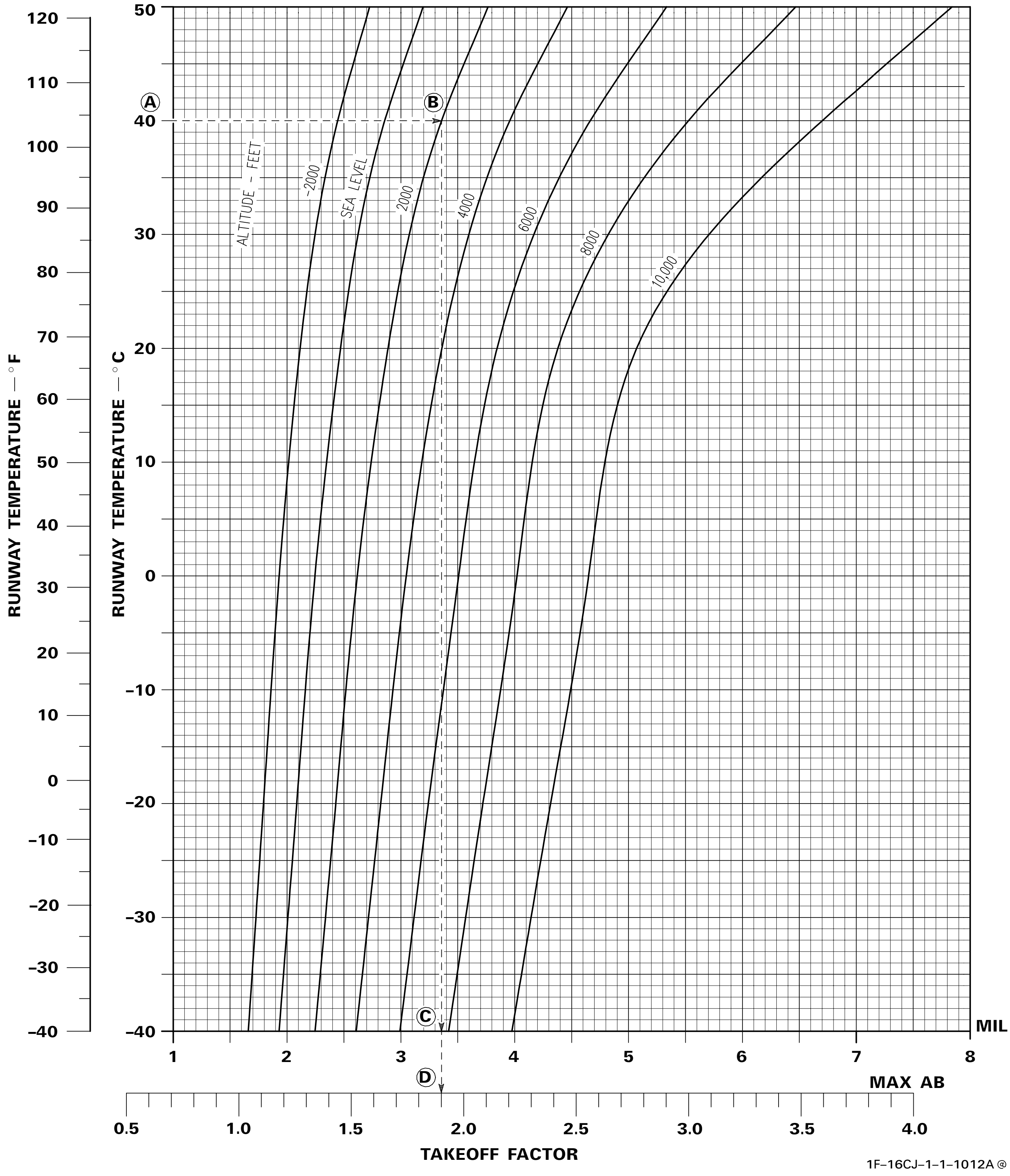


Figure A2-1.

Takeoff Speed

CONFIGURATION:
- ALL DRAG INDEXES
- CG = 35% MAC
- ZERO ROLL TRIM

CONDITIONS:
- ALL ALTITUDES
- ALL TEMPERATURES
- 10 DEGREES PITCH ATTITUDE

NOTES:
- ROTATE AT 10 KNOTS LESS THAN COMPUTED TAKEOFF SPEED FOR NON–AB.
- ROTATE AT 15 KNOTS LESS THAN COMPUTED TAKEOFF SPEED FOR AB.
- INCREASE TAKEOFF SPEED 8 PERCENT FOR TAKEOFF AT 8 DEGREES PITCH ATTITUDE.
- INCREASE TAKEOFF SPEED 0.8 KNOT FOR EACH 1% FORWARD OF 35% MAC.
- DECREASE TAKEOFF SPEED 0.8 KNOT FOR EACH 1% AFT OF 35% MAC.
- FOR TAKEOFF SPEED CORRECTION WITH ROLL TRIM OTHER THAN ZERO, REFER TO TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES CHART (FIGURE A2–10).

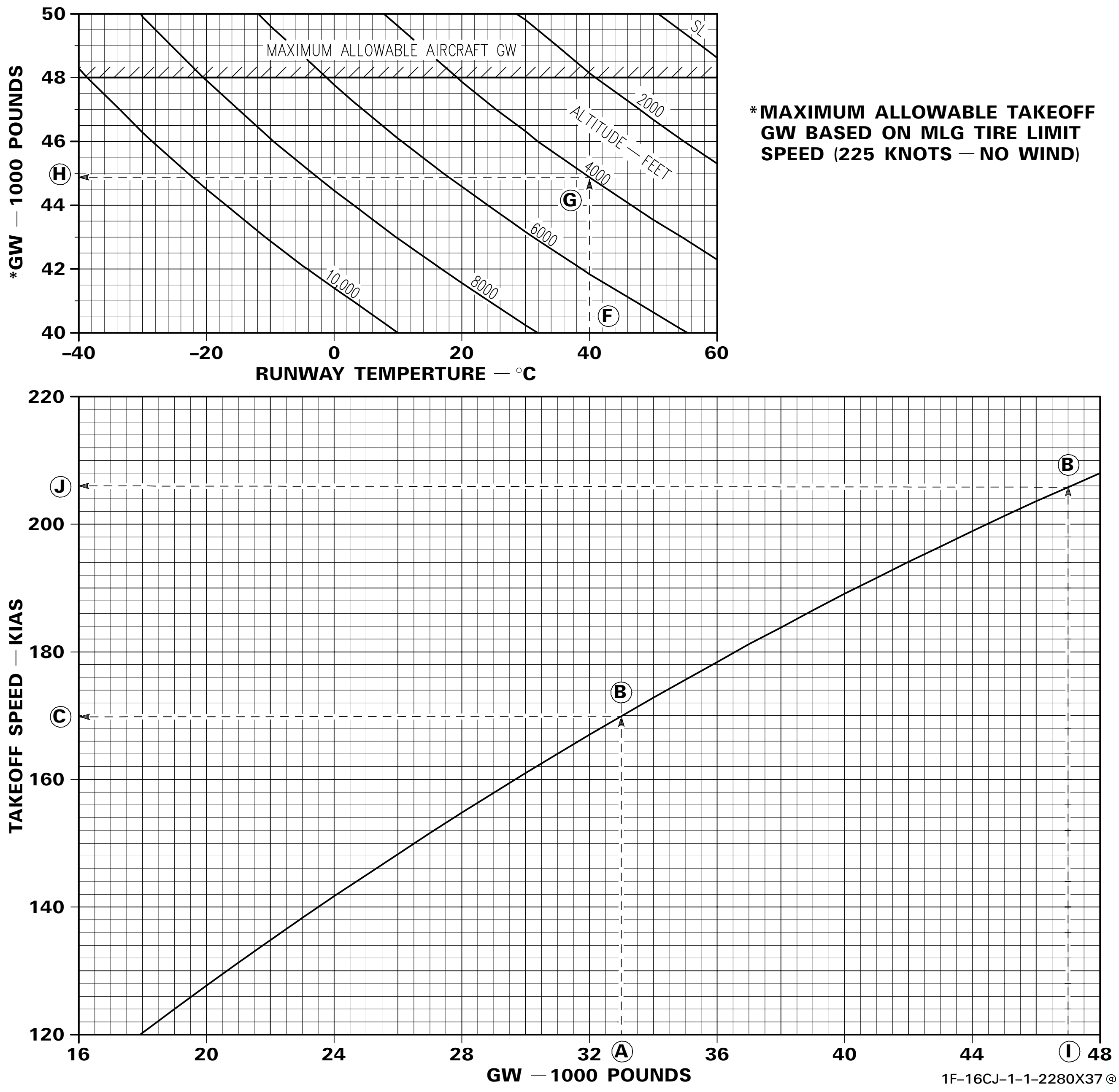


Figure A2-2.

Takeoff Distance

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100–PW–229**

- **LIFT–OFF AT TAKEOFF SPEED**
- **10 DEGREES PITCH ATTITUDE**

NOTE: 8 DEGREES PITCH ATTITUDE INCREASES TAKEOFF DISTANCE 18 PERCENT.

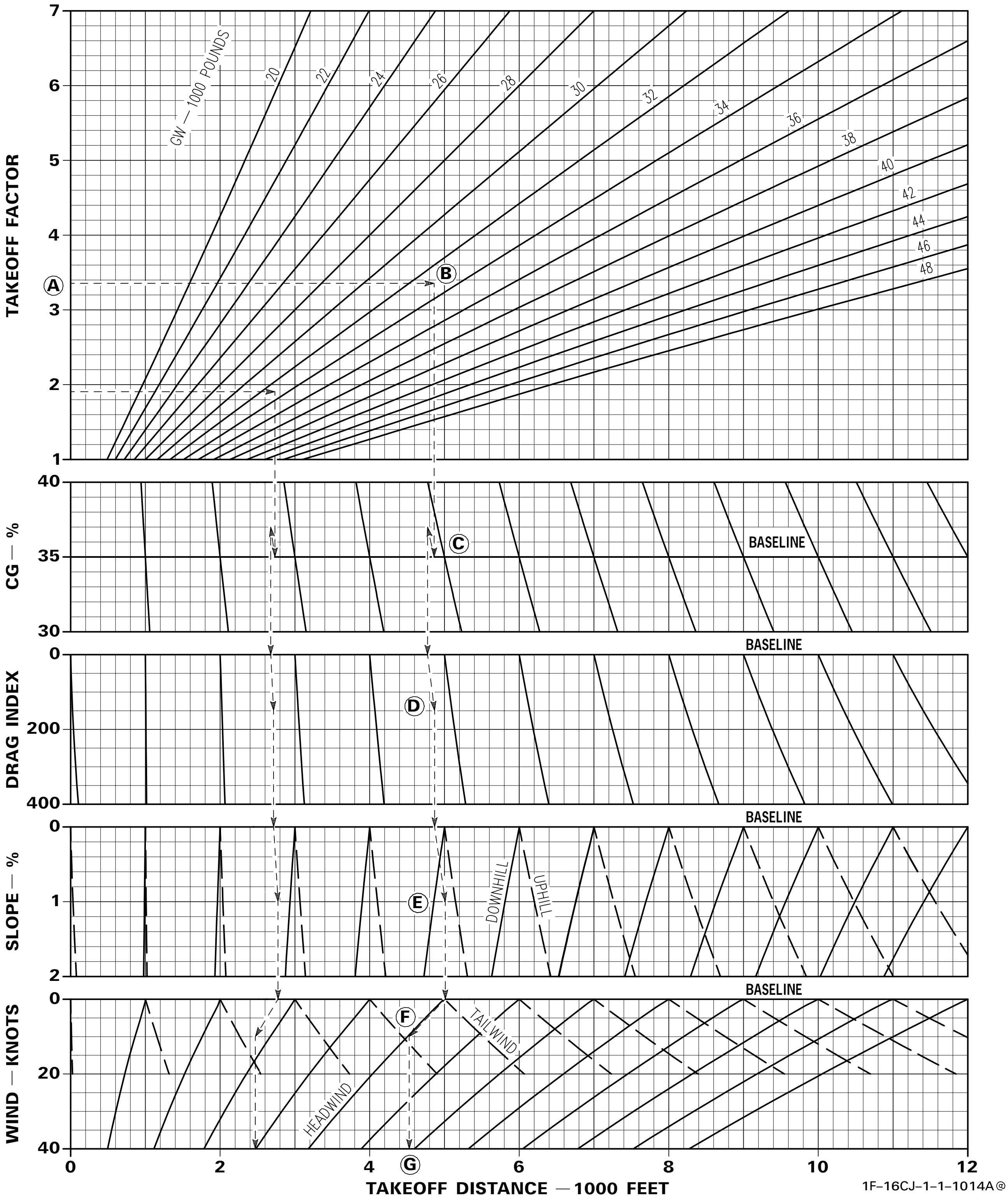


Figure A2-3.

Acceleration Check Speed

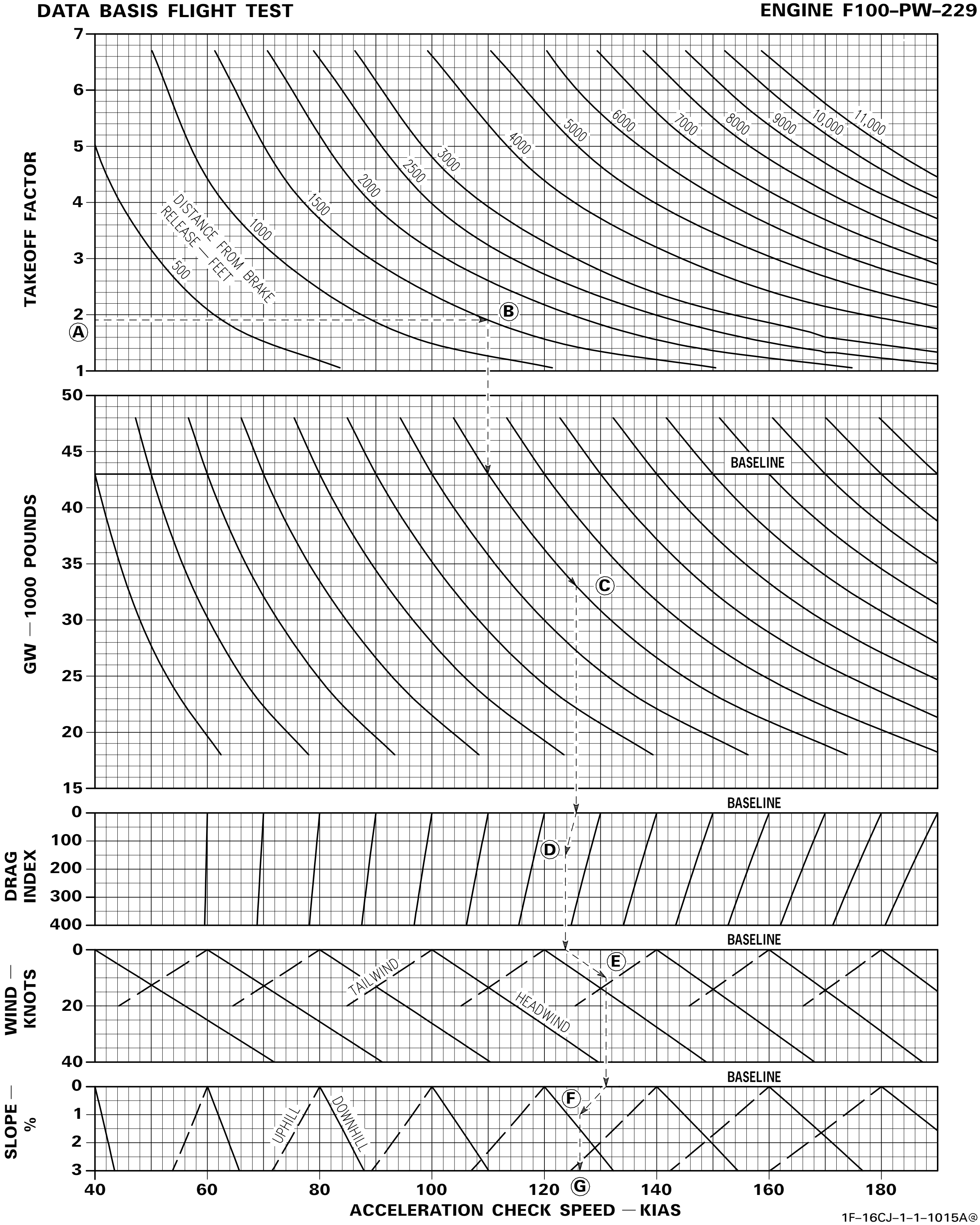


Figure A2-4.

Refusal Speed (Non-AB)

DATA BASIS ESTIMATED

ENGINE F100-PW-229

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2-12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE REFUSAL SPEED BY 4 KIAS FOR ALL GW'S.

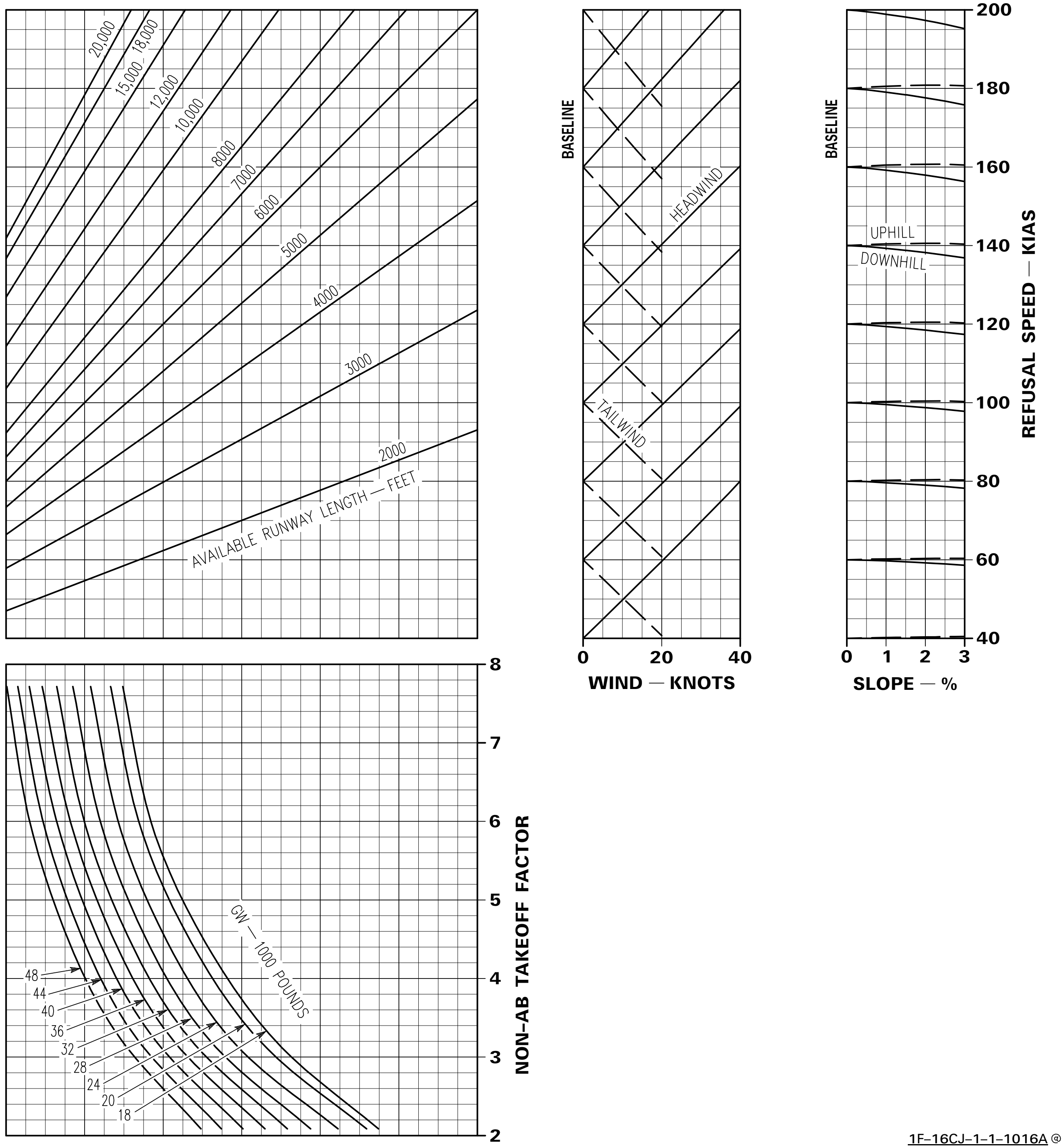


Figure A2-5. (Sheet 1)

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE REFUSAL SPEED BY 9 KIAS FOR ALL GW'S.

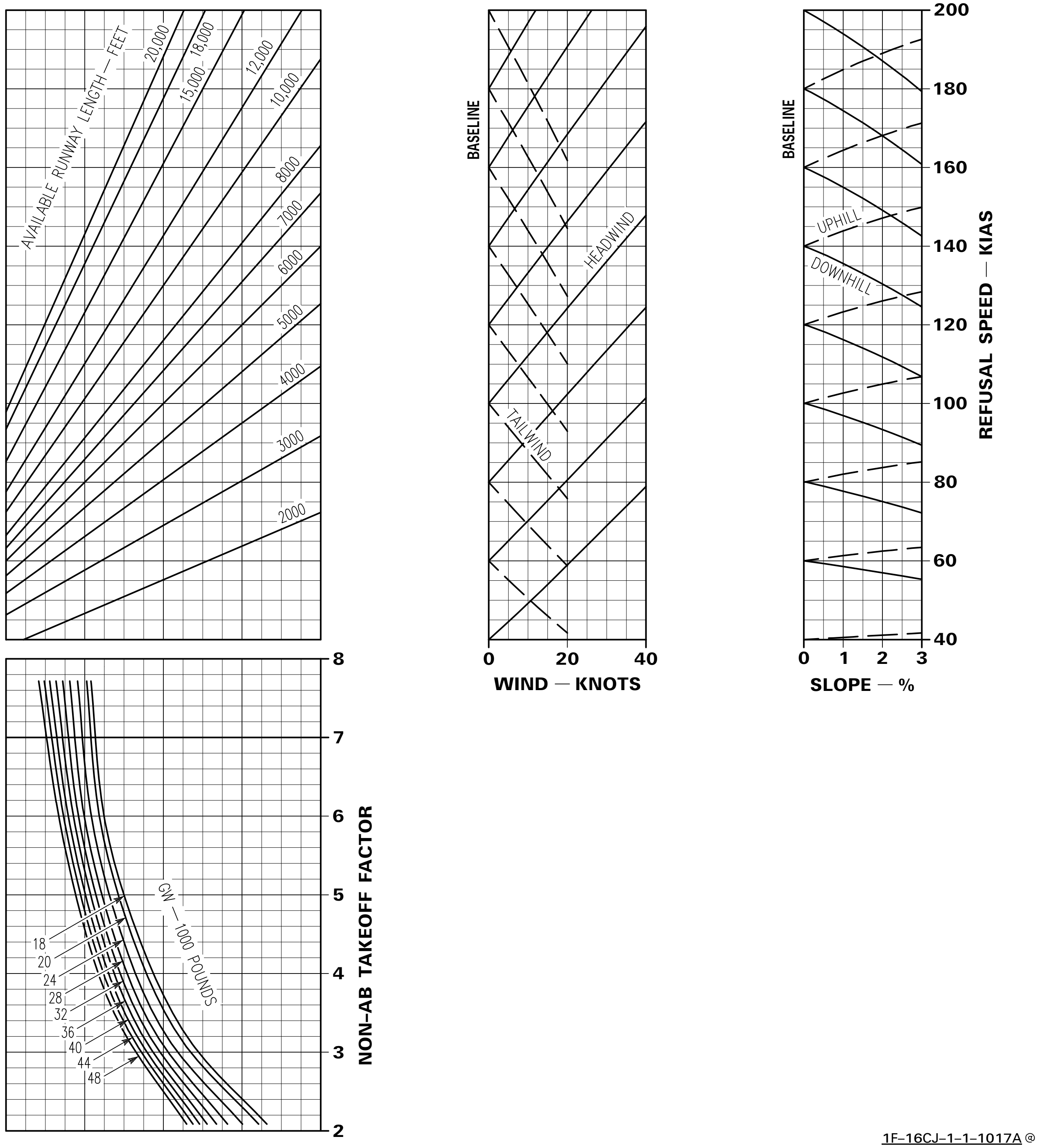


Figure A2-5. (Sheet 2)

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

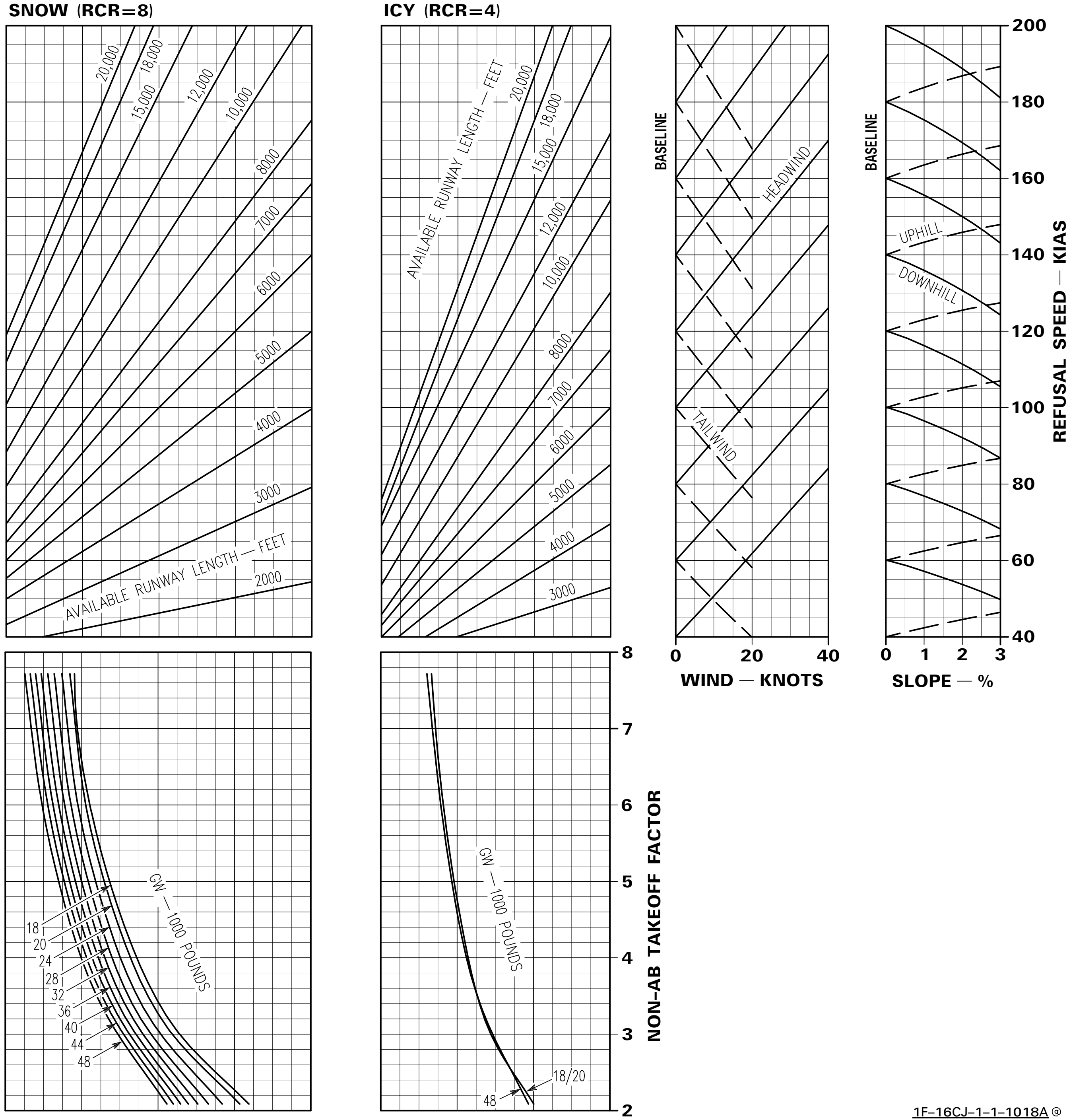


Figure A2-5. (Sheet 3)

Refusal Speed (AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE REFUSAL SPEED BY 5 KIAS FOR ALL GW'S.

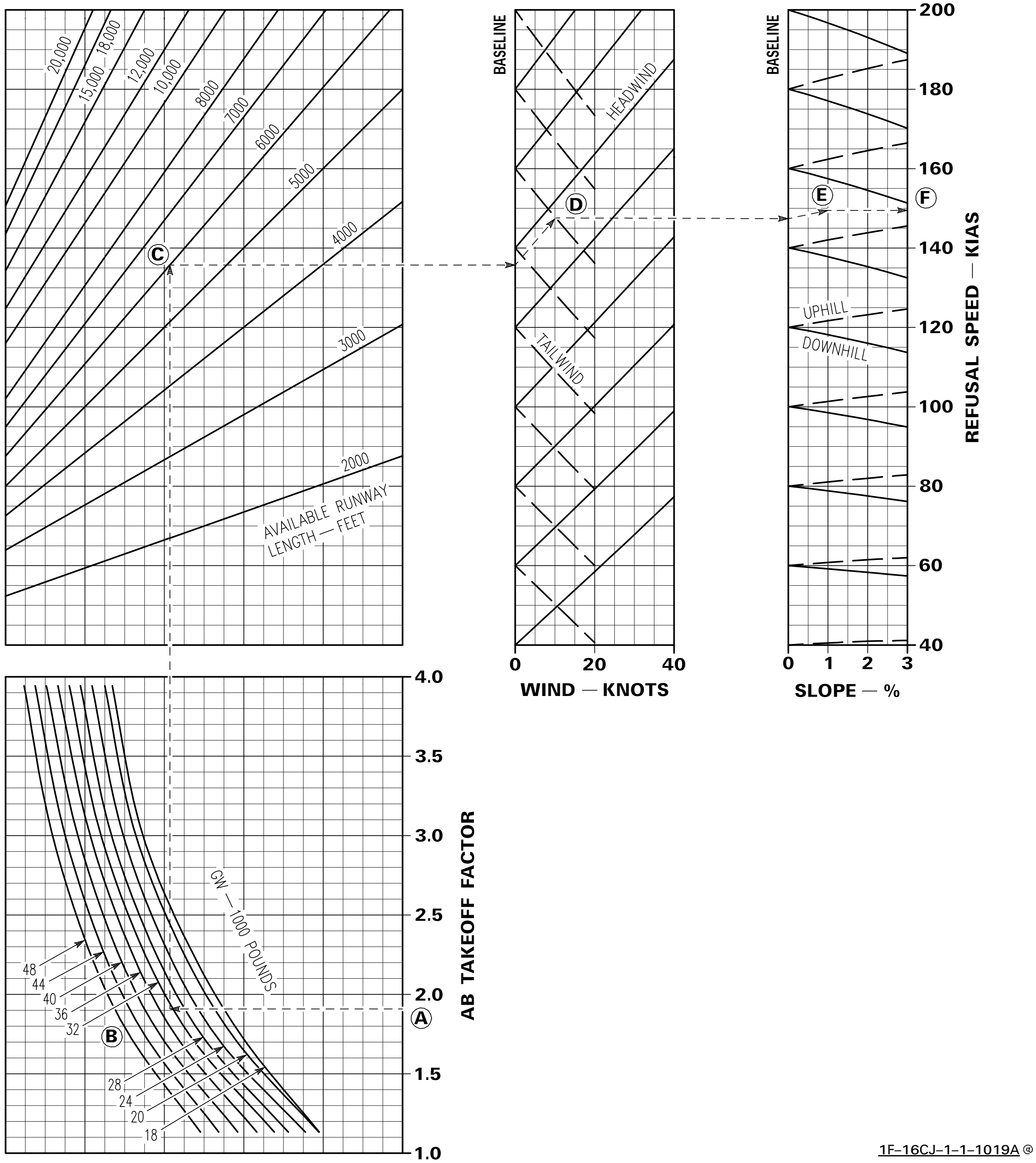


Figure A2-6. (Sheet 1)

Refusal Speed (AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE REFUSAL SPEED BY 10 KIAS FOR ALL GW'S.

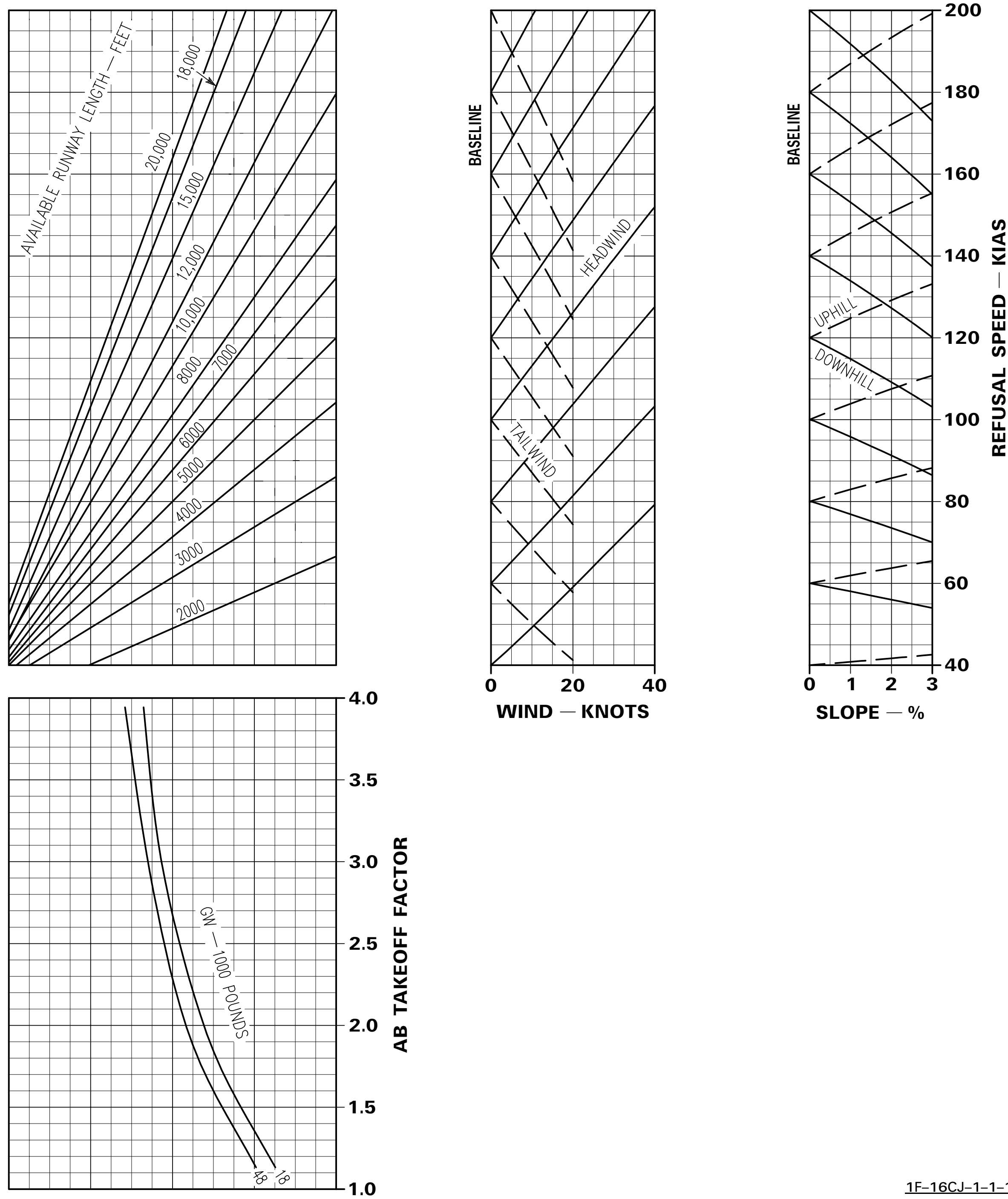


Figure A2-6. (Sheet 2)

Refusal Speed (AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

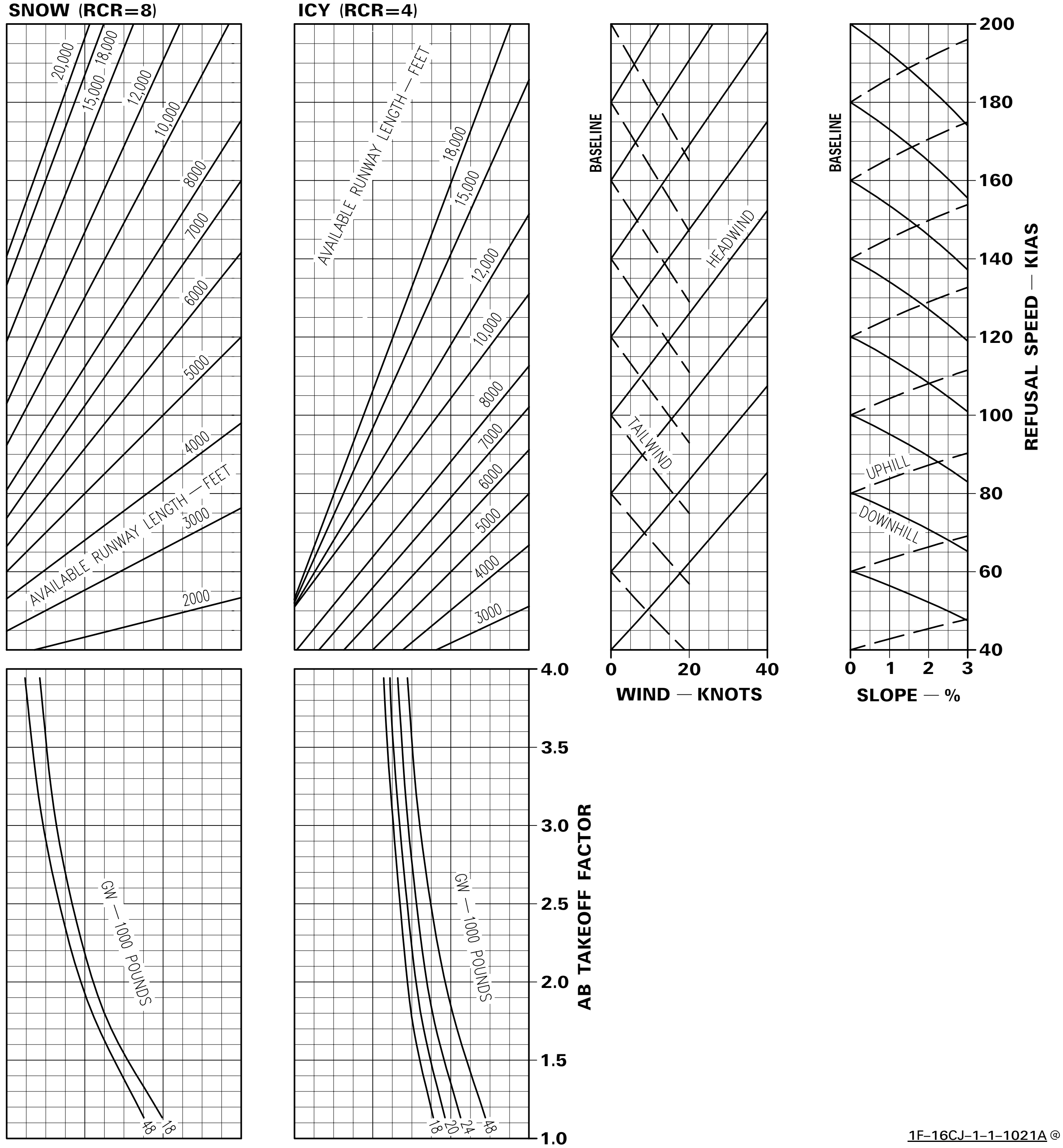


Figure A2-6. (Sheet 3)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE DRY RUNWAY REFUSAL SPEED BY 2.5 KIAS FOR ALL GW'S.

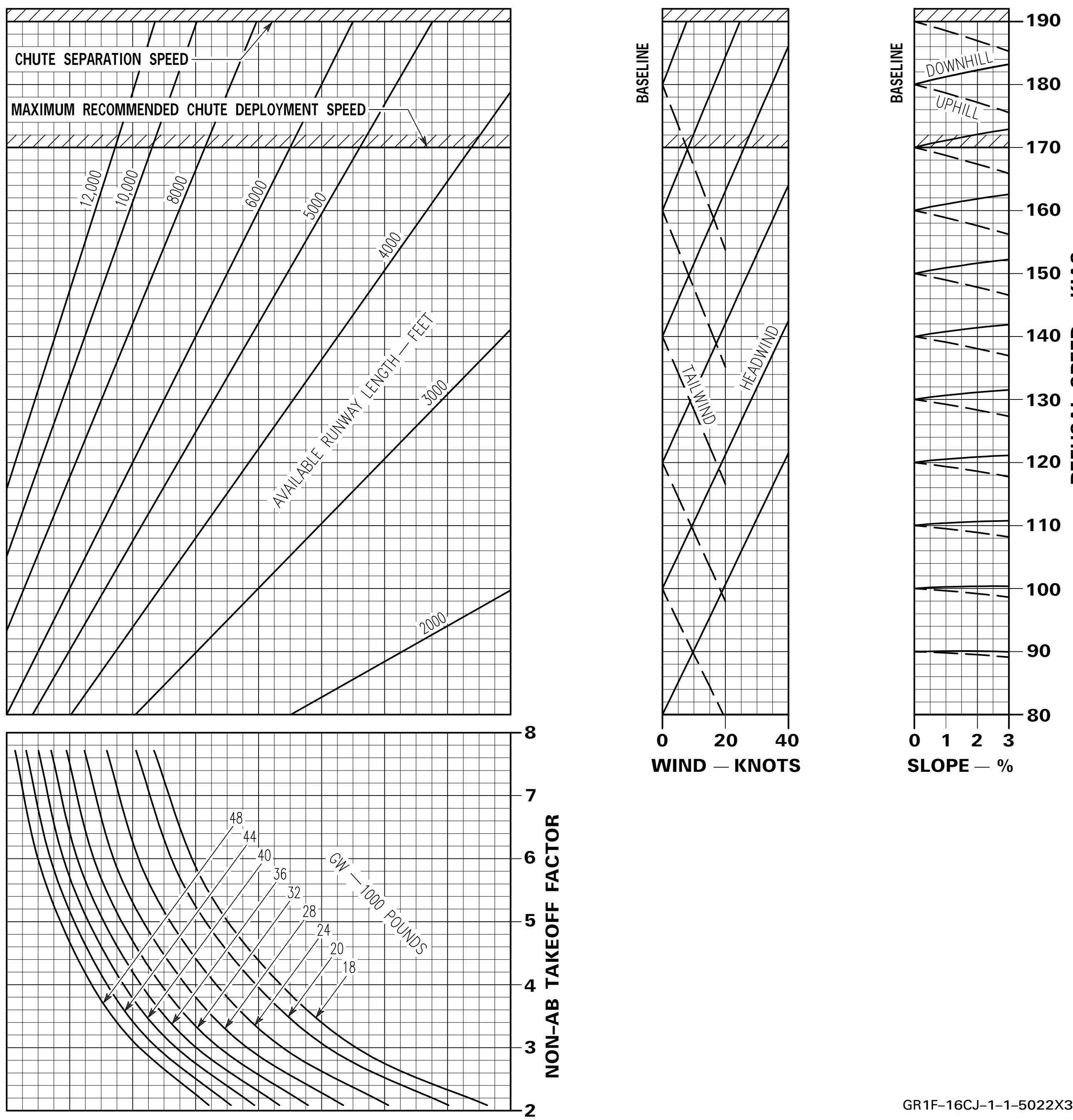


Figure A2-7. (Sheet 1)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE WET RUNWAY REFUSAL SPEED BY 6 KIAS FOR ALL GW'S.

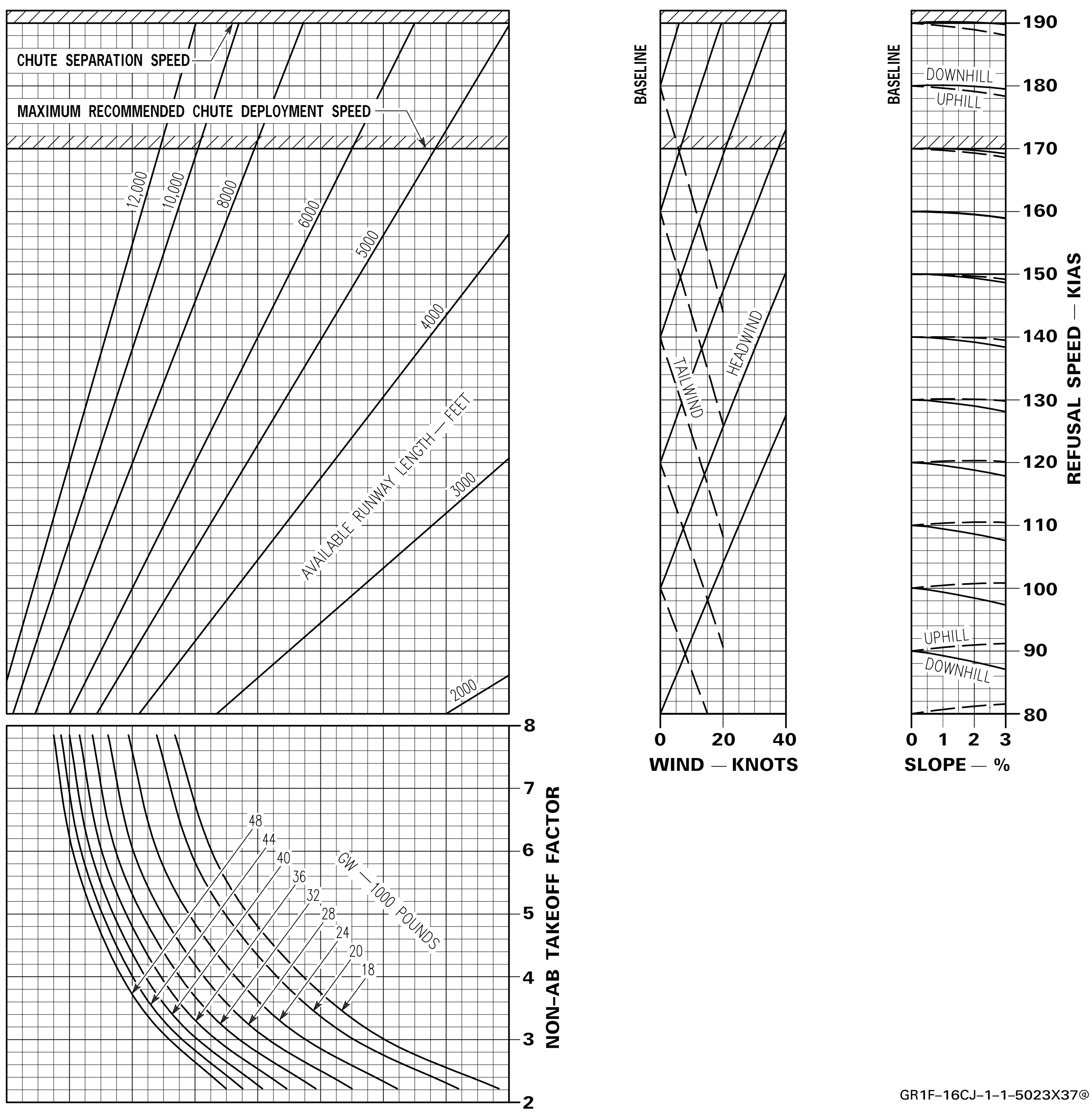


Figure A2-7. (Sheet 2)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

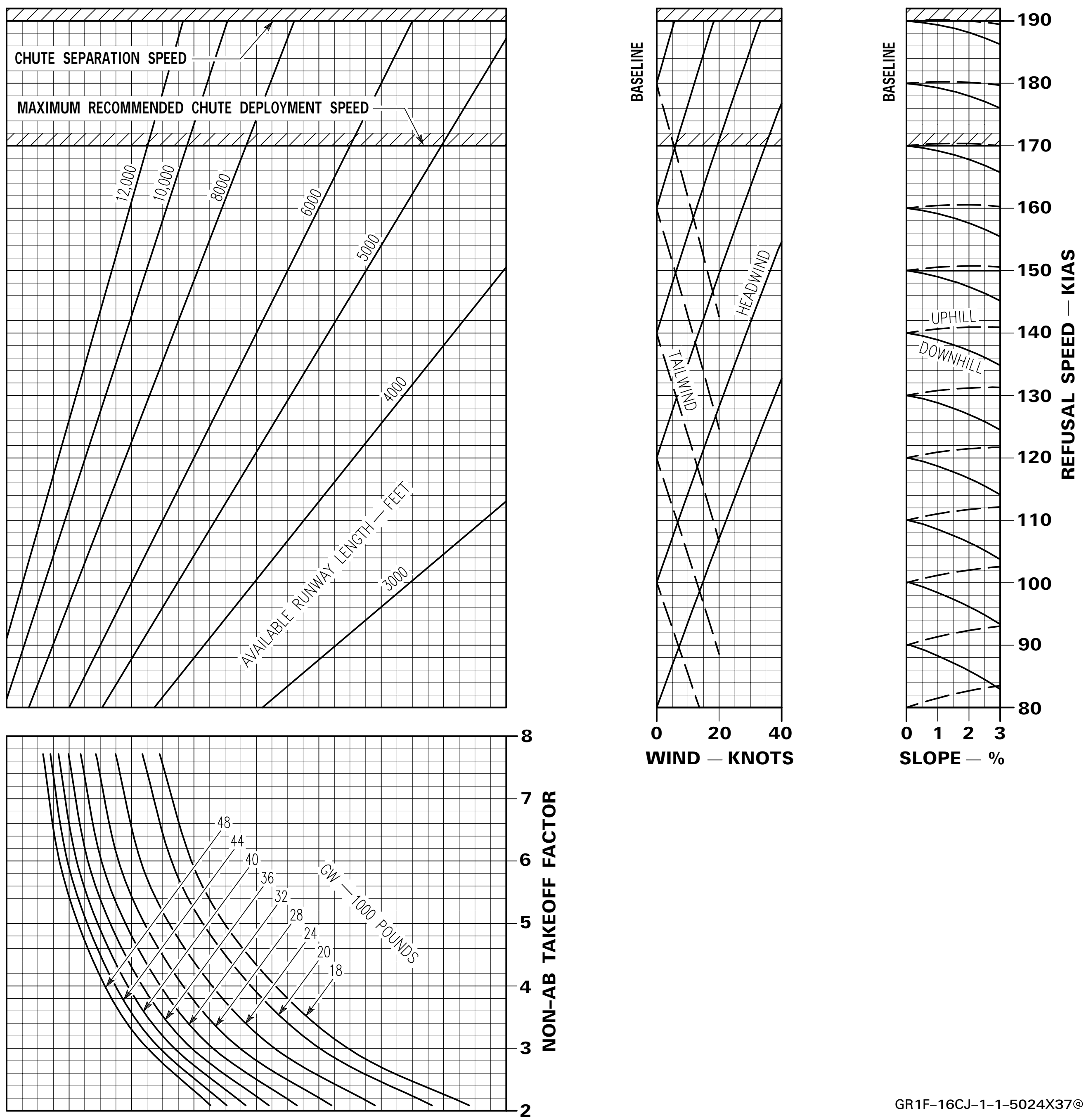


Figure A2-7. (Sheet 3)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

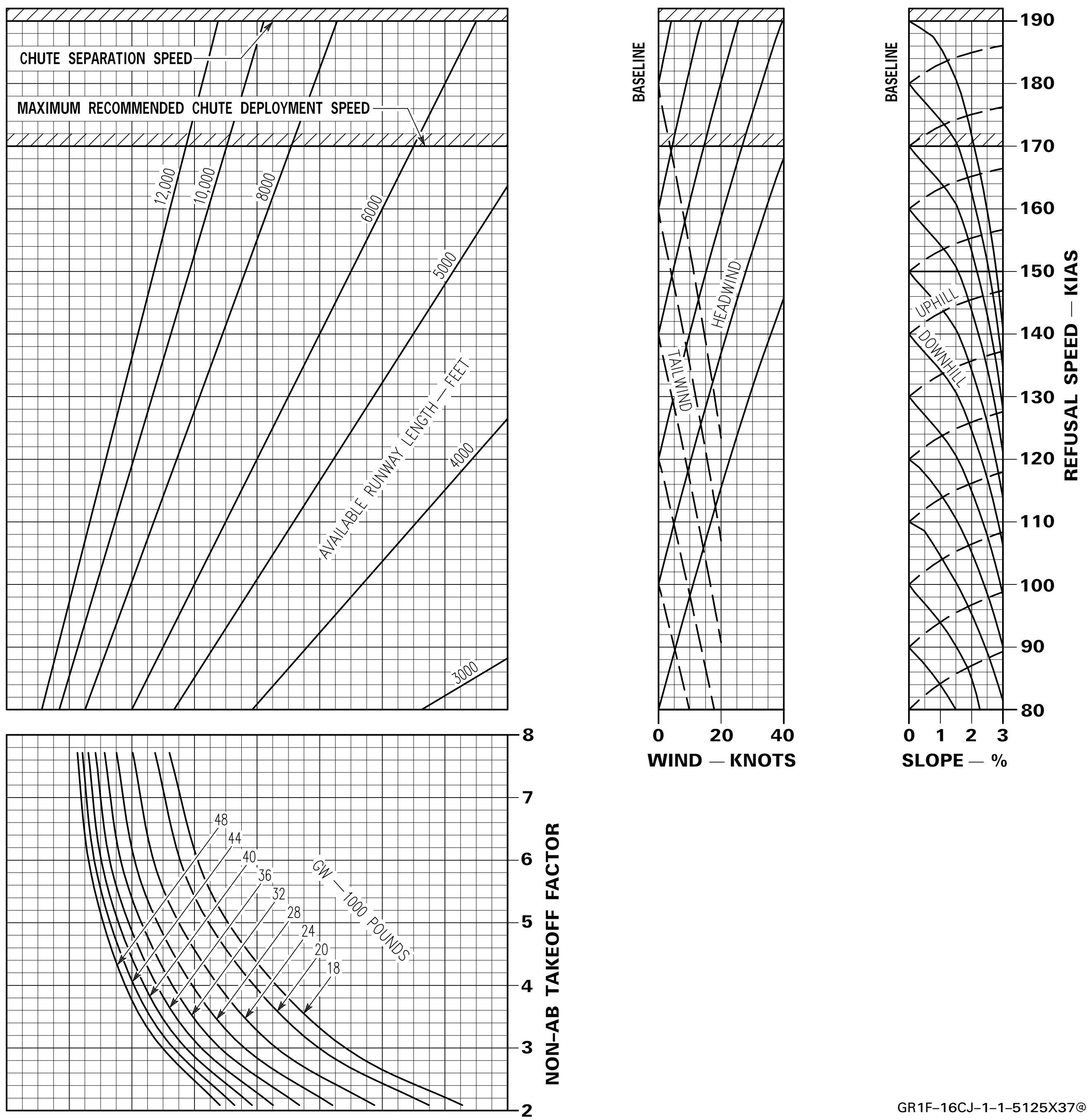


Figure A2-7. (Sheet 4)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE DRY RUNWAY REFUSAL SPEED BY 3.5 KIAS FOR ALL GW'S.

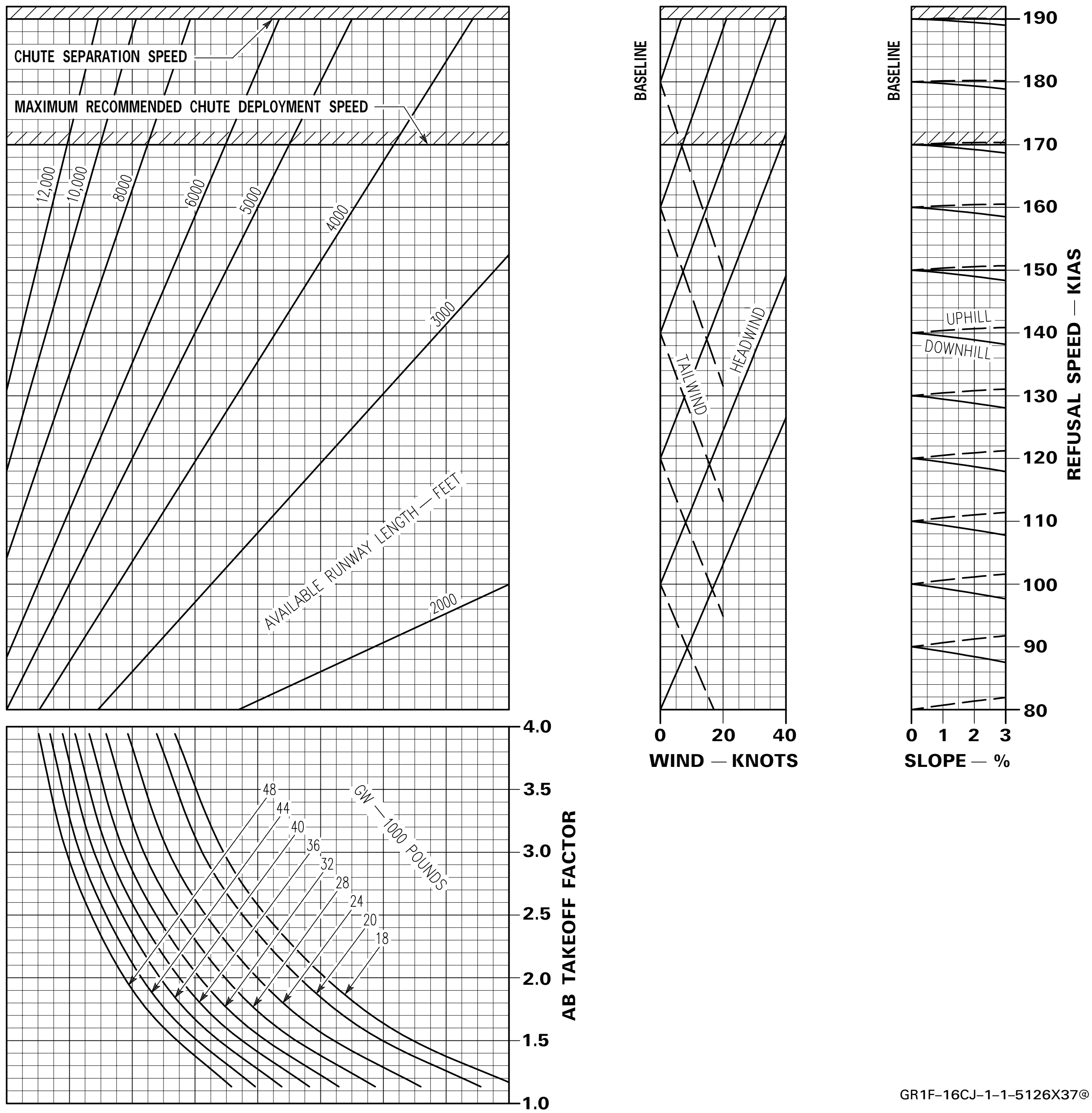


Figure A2-8. (Sheet 1)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2-12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE WET RUNWAY REFUSAL SPEED BY 8.5 KIAS FOR ALL GW'S.

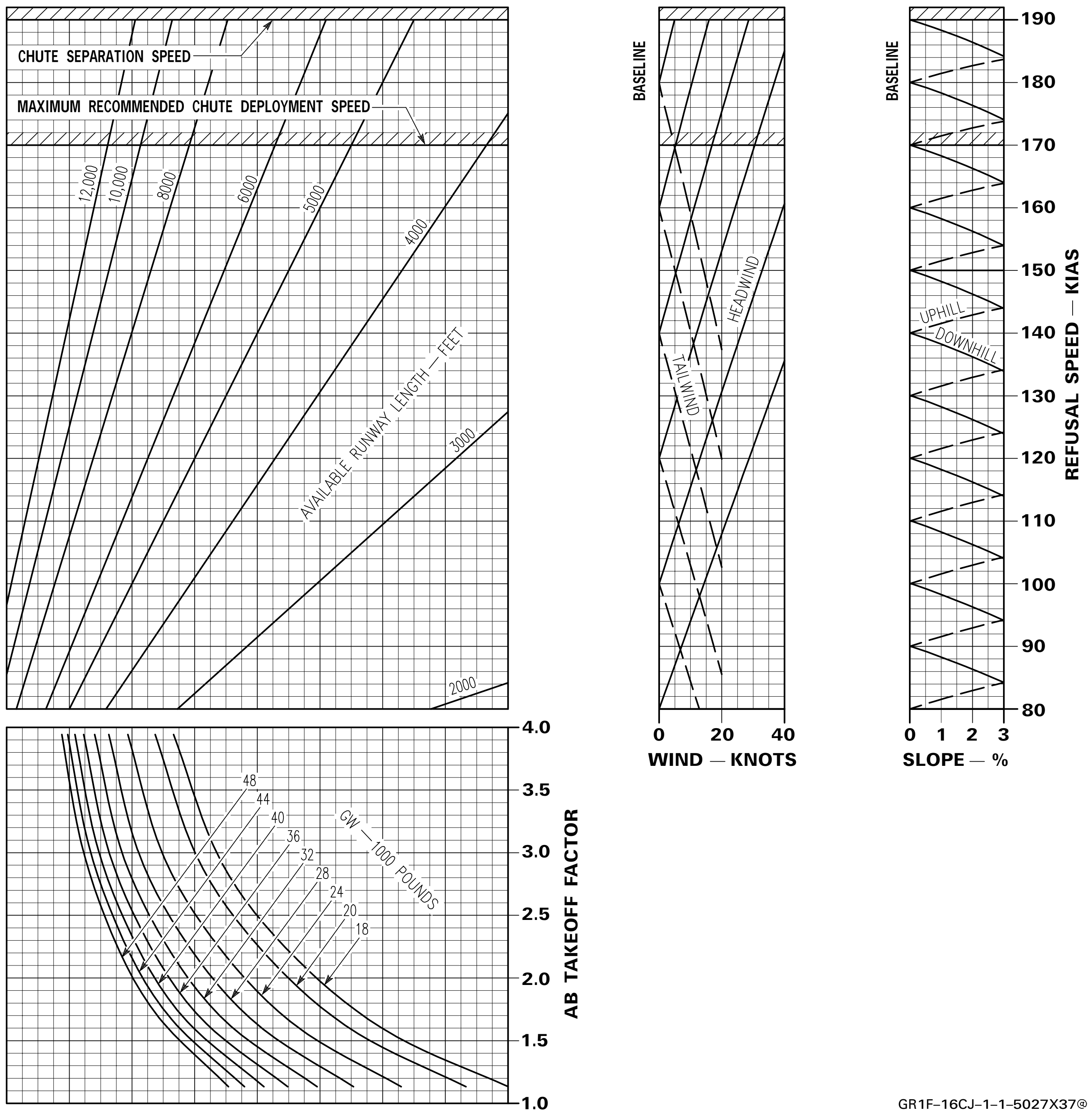


Figure A2-8. (Sheet 2)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

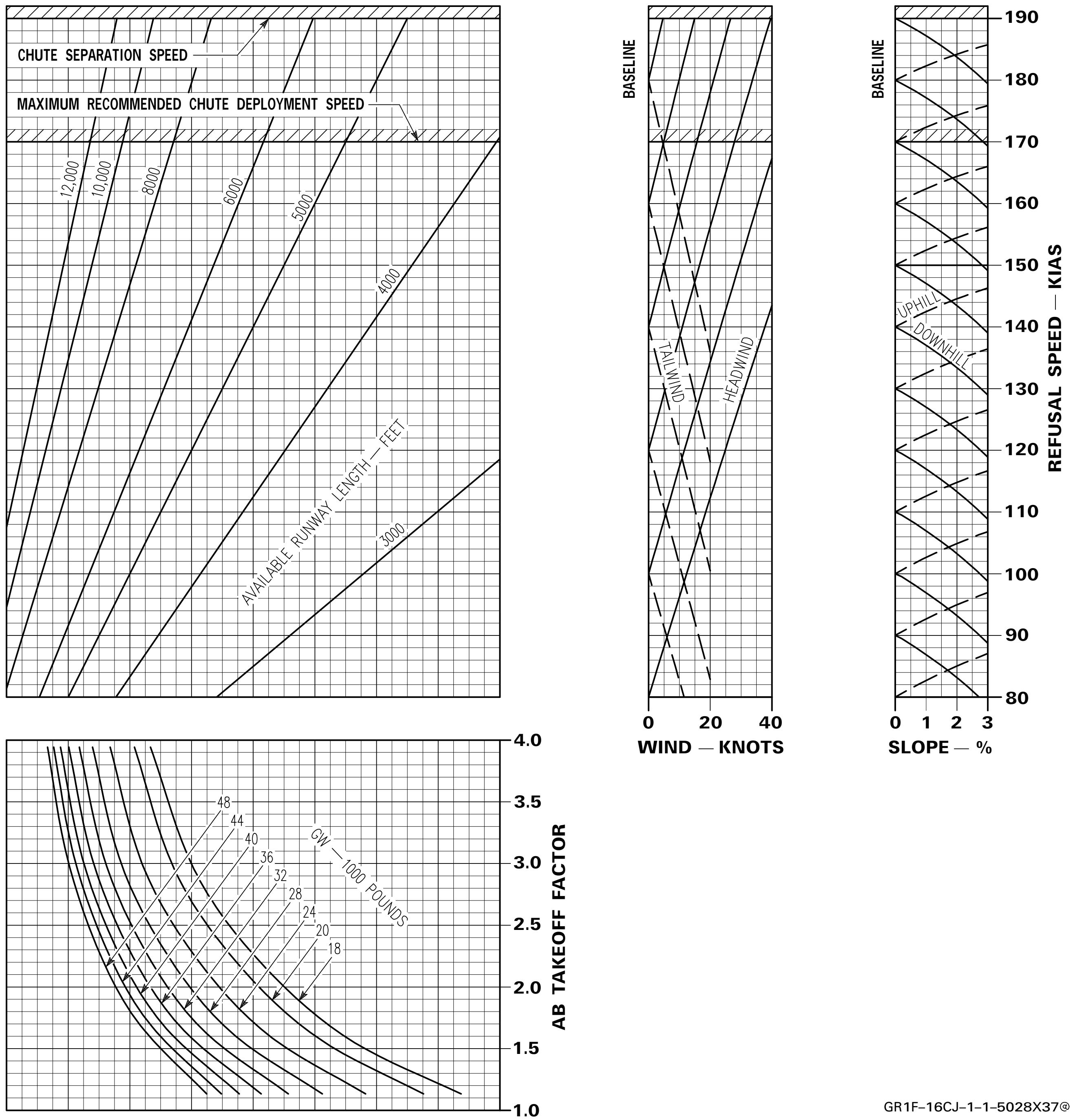


Figure A2-8. (Sheet 3)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE
- DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING

ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE A2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

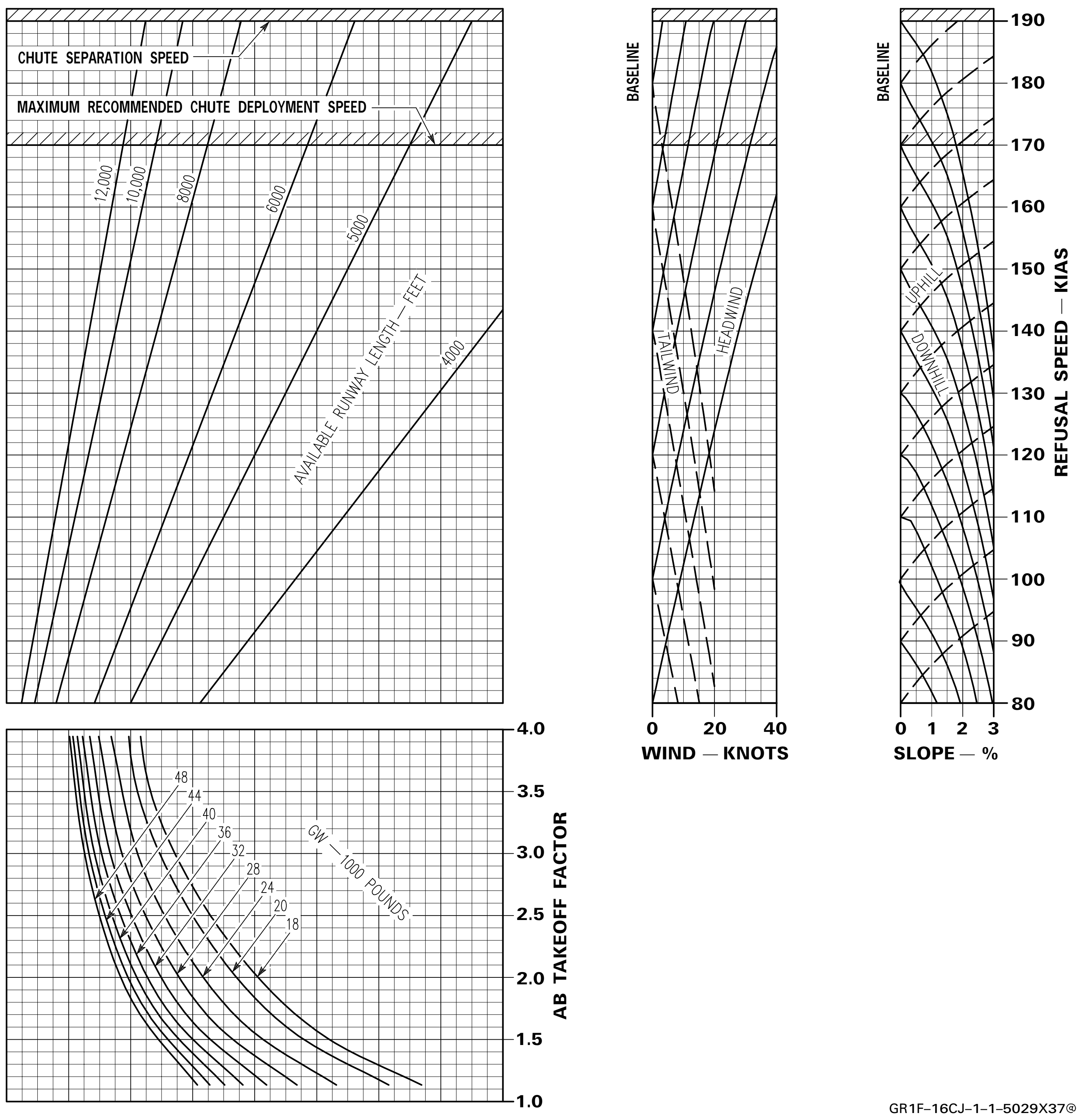


Figure A2-8. (Sheet 4)

Minimum AB Blowout Speed

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

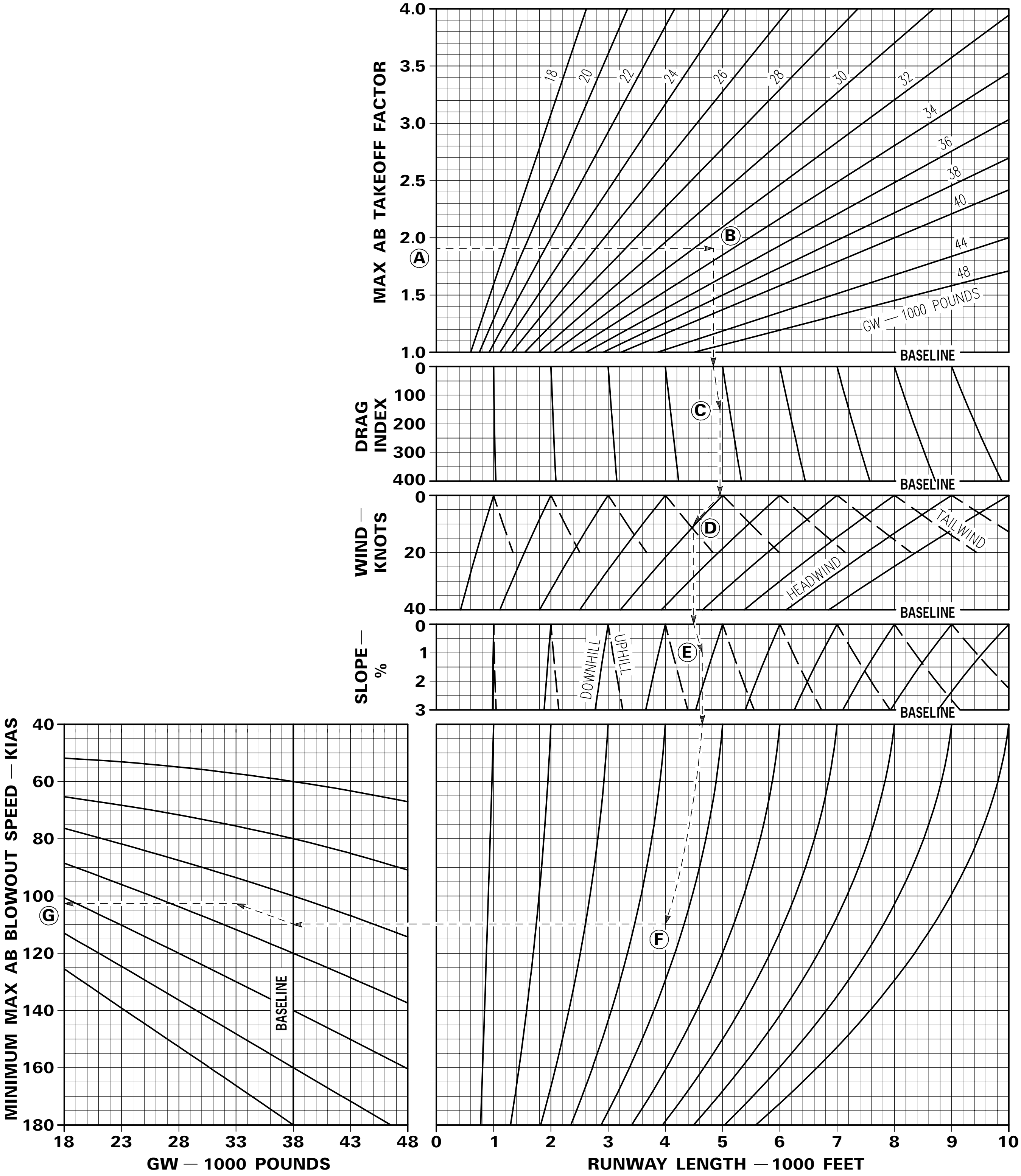


Figure A2-9.

Takeoff Roll Trim With Asymmetric Stores

DATA BASIS FLIGHT TEST

CONFIGURATION:

- LEF'S SCHEDULED
- TEF'S AT 20 DEGREES

NOTES:

- INCREASE TAKEOFF SPEED 2 KNOTS FOR EACH DOT OF ROLL TRIM APPLIED TO COMPENSATE FOR REDUCED LIFT. TAKEOFF DISTANCE INCREASES PROPORTIONATELY TO THE SPEED INCREASE.
- IT IS POSSIBLE TO EXCEED THE LATERAL TRIM AUTHORITY OF THE AIRCRAFT FOR ONSPEED TAKEOFF WITH A NET ASYMMETRIC (ROLLING) MOMENT LESS THAN AIRCRAFT TAKEOFF LIMITS. REFER TO SECTION V FOR LIMITS.

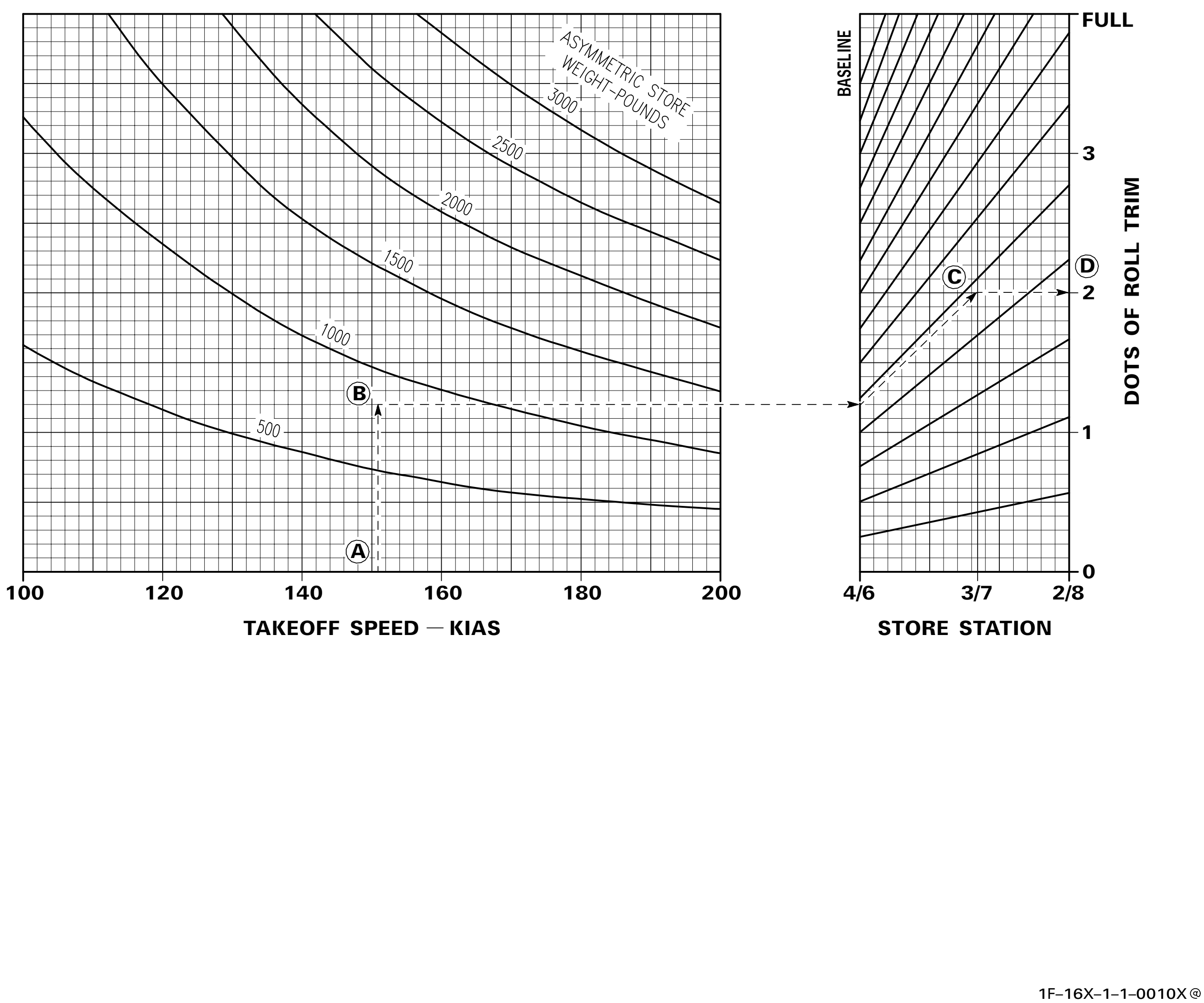


Figure A2-10.

Takeoff and Landing Crosswind Limits

NOTES:

- **CROSSWIND LIMITS FOR RCR VALUES 4–23 MAY BE OBTAINED BY INTERPOLATING BETWEEN THE LIMITS SHOWN.**
- **ENTER CHART WITH STEADY WIND TO DETERMINE HEADWIND COMPONENT AND MAXIMUM GUST VELOCITY TO DETERMINE CROSSWIND COMPONENT.**

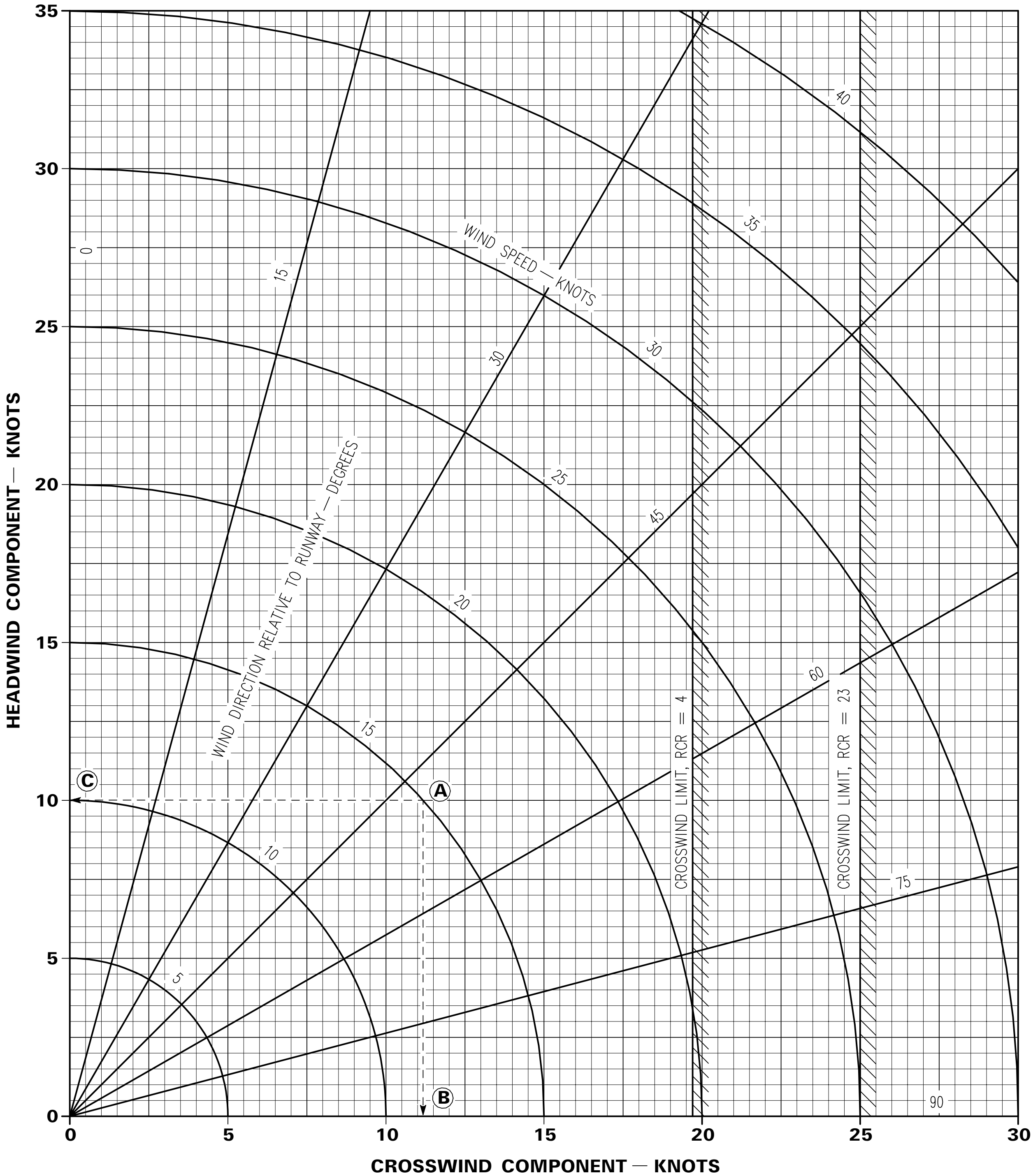


Figure A2-11.

Brake Energy Limits — Max Effort Braking

DATA BASIS ESTIMATED **ENGINE F100-PW-229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- TEF's DOWN

CONDITIONS:
- NORMAL IDLE THRUST

CAUTION

- EXCEEDING 24.5 MILLION FOOT-POUNDS PER BRAKE CUMULATIVE TOTAL ENERGY MAY RESULT IN LOSS OF BRAKING.

NOTES:
- ADD TAILWIND COMPONENT OR SUBTRACT ONE-HALF HEADWIND COMPONENT FROM AIRSPEED WHEN BRAKES ARE APPLIED.
- FOR ABORTED TAKEOFF AT AIRSPEED GREATER THAN 100 KNOTS, ADD 2 MILLION FOOT-POUNDS PER BRAKE IF BRAKES ARE APPLIED SOONER THAN 4 SECONDS AFTER THROTTLE IS RETARDED TO IDLE.
- IF LANDING WITH ASYMMETRICAL WING LOADING, TAKE ACTION AS APPLICABLE FOR NEXT HIGHER ENERGY ZONE TO ALLOW FOR UNEQUAL BRAKE ENERGY DISTRIBUTION.

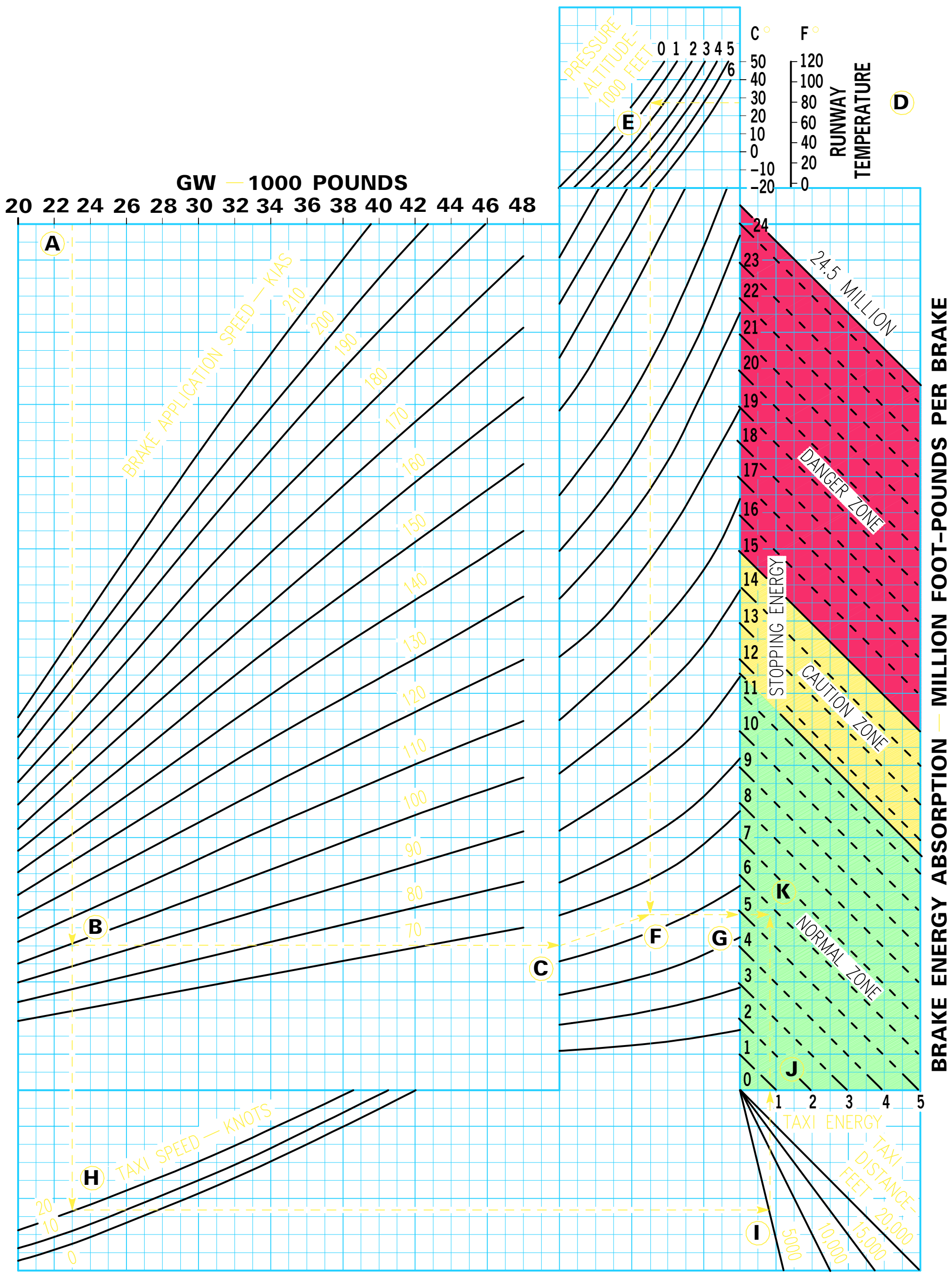


Figure A2-12. (Sheet 1)

Brake Energy Limits — Max Effort Braking With Drag Chute

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

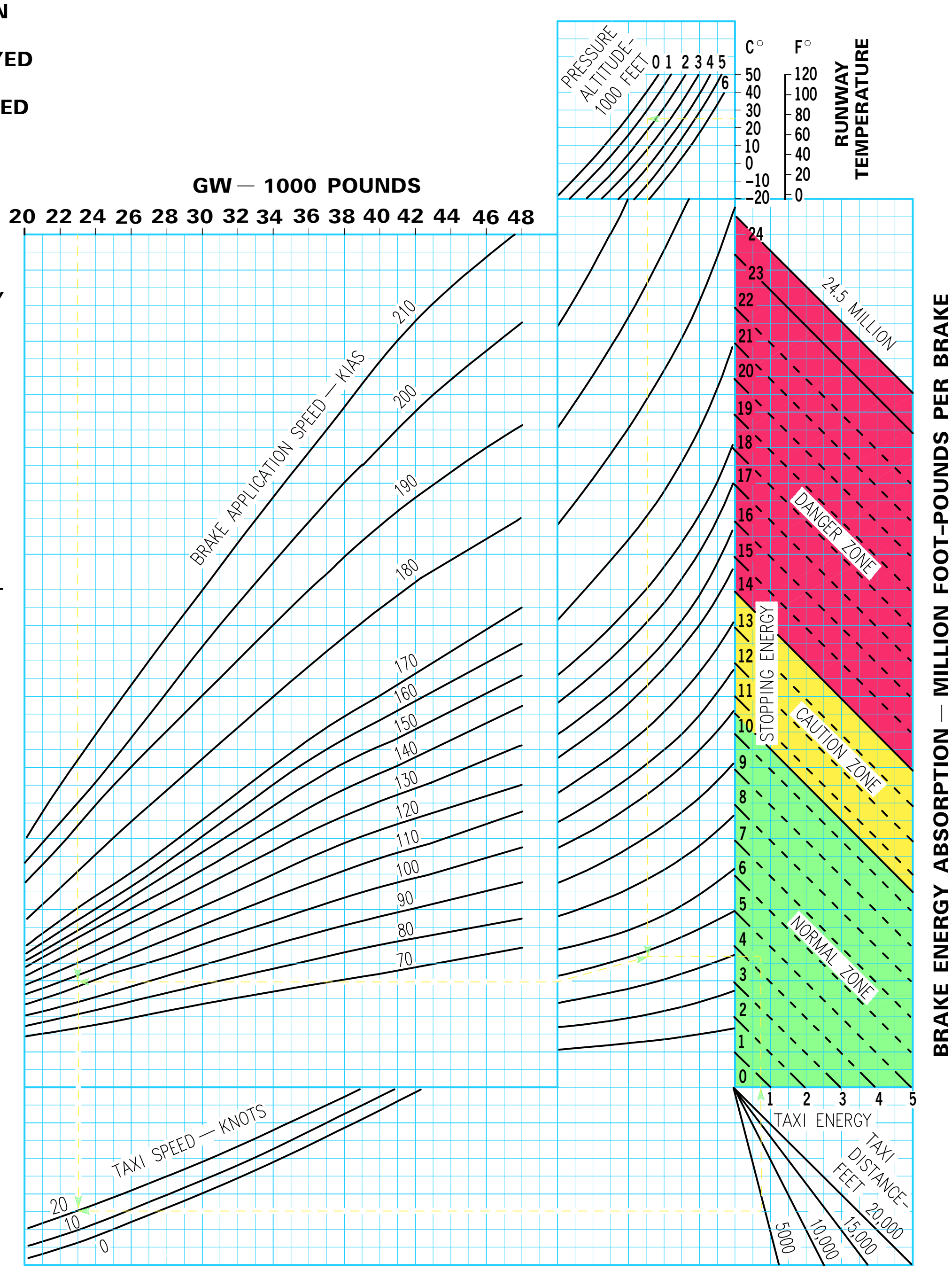
CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- TEF'S DOWN
- DRAG CHUTE DEPLOYED BELOW 170 KIAS
- DRAG CHUTE RELEASED PRIOR TO TAXI

CONDITIONS:
- NORMAL IDLE THRUST

CAUTION

- EXCEEDING 24.5 MILLION FOOT–POUNDS PER BRAKE CUMULATIVE TOTAL ENERGY MAY RESULT IN LOSS OF BRAKING.
- DEPLOYING DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

NOTES:
- ADD TAILWIND COMPONENT OR SUBTRACT ONE–HALF HEADWIND COMPONENT FROM AIRSPEED WHEN BRAKES ARE APPLIED.
- FOR ABORTED TAKEOFF AT AIRSPEED GREATER THAN 100 KNOTS, ADD 2 MILLION FOOT–POUNDS PER BRAKE IF BRAKES ARE APPLIED SOONER THAN 4 SECONDS AFTER THROTTLE IS RETARDED TO IDLE.
- IF LANDING WITH ASYM–METRICAL WING LOADING, TAKE ACTION AS APPLIC–ABLE FOR NEXT HIGHER ENERGY ZONE TO ALLOW FOR UNEQUAL BRAKE ENERGY DISTRIBUTION.



GR1F–16CJ–1–1–5026A37

Figure A2-12. (Sheet 2)

Brake Energy Limits — Max Effort Braking

ACTION TO BE TAKEN AS APPLICABLE TO THE AMOUNT OF BRAKE ENERGY ABSORBED

DANGER ZONE

1. REFER TO T.O. GR1F-16CJ-1, HOT BRAKES.

2. USE MODERATE BRAKING BELOW 25 KNOTS GROUNDSPEED AND MAINTAIN FORWARD MOTION.

3. THE SIDE AREA WITHIN 300 FEET OF THE MLG TIRES SHOULD BE REGARDED AS UNSAFE FOR 45 MINUTES AFTER AIRCRAFT HAS STOPPED UNLESS THE FUSIBLE PLUGS HAVE RELIEVED TIRE PRESSURE.

4. HYDRAULIC FLUID OR TIRE FIRE IS IMMINENT. APPROACH MLG FROM FRONT OR REAR FOR FIREFIGHTING PURPOSES ONLY. APPLY EXTINGUISHING AGENT AS FOG OR FOAM DIRECTLY ON THE WHEELS.

CAUTION ZONE

1. REFER TO T.O. GR1F-16CJ-1, HOT BRAKES.

2. THE SIDE AREA WITHIN 300 FEET OF THE MLG TIRES SHOULD BE REGARDED AS UNSAFE FOR 45 MINUTES AFTER AIRCRAFT HAS STOPPED UNLESS THE FUSIBLE PLUGS HAVE RELIEVED TIRE PRESSURE.

3. DO NOT ATTEMPT TAKEOFF UNTIL BRAKE HOUSINGS, WHEEL RIMS, AND TIRES HAVE COOLED ENOUGH TO PERMIT AT LEAST 15 SECONDS OF CONTINUOUS BARE HAND CONTACT. THIS COOLING PERIOD IS TO PREVENT POSSIBLE TIRE FAILURE DURING TAKEOFF OR IN FLIGHT.

NORMAL ZONE

1. DO NOT SET PARKING BRAKE IF AIRCRAFT HAS FLOWN IN THE PAST 2 HOURS OR IF CUMULATIVE TOTAL ENERGY EXCEEDS 9 MILLION FOOT-POUNDS PER BRAKE. OTHER ACTION TO BE TAKEN IS DETERMINED BY CUMULATIVE TOTAL ENERGY AND AMBIENT TEMPERATURE, AS INDICATED BY SAFE TIRE BEAD TEMPERATURE CHART.

2. IF CUMULATIVE TOTAL ENERGY EXCEEDS THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE:

   A. DO NOT ATTEMPT TAKEOFF UNTIL BRAKE HOUSINGS, WHEEL RIMS, AND TIRES HAVE COOLED ENOUGH TO PERMIT AT LEAST 15 SECONDS OF CONTINUOUS BARE HAND CONTACT. THIS COOLING PERIOD IS TO PREVENT POSSIBLE TIRE FAILURE DURING TAKEOFF OR IN FLIGHT.

   B. A COOLING PERIOD OF APPROXIMATELY 30 MINUTES PLUS AN ADDITIONAL 30 MINUTES FOR EACH 1 MILLION FOOT-POUNDS BRAKE ENERGY ABOVE THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE IS REQUIRED.

3. IF CUMULATIVE TOTAL ENERGY DOES NOT EXCEED THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE AND THE AIRCRAFT HAS NOT FLOWN IN THE PAST 2 HOURS, PARKING BRAKE MAY BE SET AND NO BRAKE COOLING IS REQUIRED PRIOR TO SUBSEQUENT TAKEOFF. DETERMINE MAXIMUM BRAKE APPLICATION SPEED IN CASE SUBSEQUENT TAKEOFF IS ABORTED BY SUBTRACTING CUMULATIVE TOTAL ENERGY FROM THE 23.5 MILLION FOOT-POUNDS.

Figure A2-12. (Sheet 3)

Safe Tire Bead Temperature — For Quick Turnaround

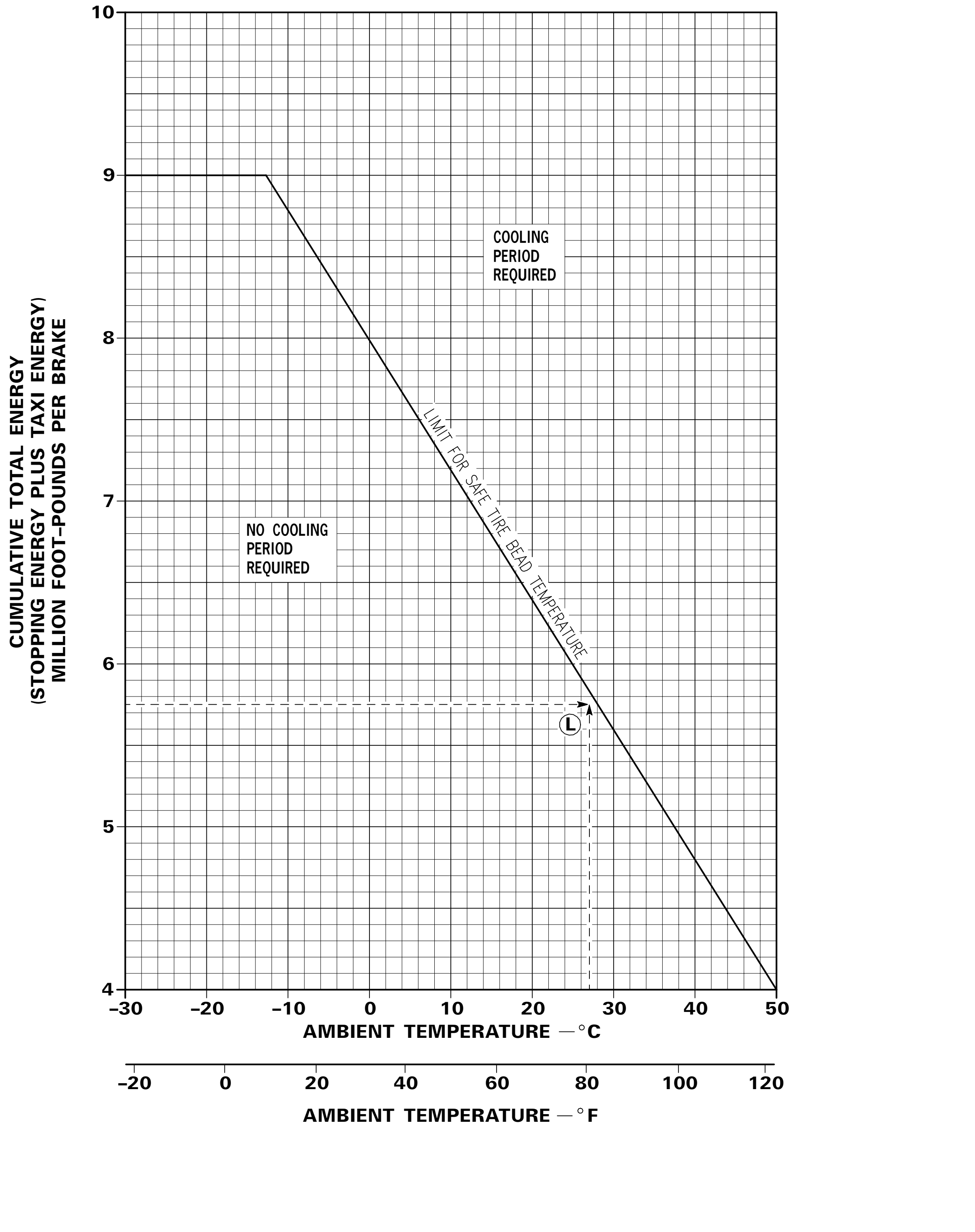


Figure A2-13.

PART 3 – CLIMB

TABLE OF CONTENTS

LIST OF CHARTS

Data needed to plan for MIL and MAX AB climbs is contained in this part, including climbout from takeoff, climb to cruise, and ceiling altitudes. Refer to Part 8 for information regarding combat ceiling and climb to combat ceiling.

GROUND OPERATION FUEL CONSUMPTION

Idle fuel flow is approximately 20 pounds per minute. An average of 25 pounds per minute is used for ground operation.

CLIMBOUT FUEL, TIME, AND DISTANCE

Figures A3-1 and A3-2 contain data describing fuel, time, and distance from end of runway brake release to climb airspeed. Effects of temperature, GW, altitude, and drag index are shown. A constant throttle position (MIL or MAX AB) from brake release to MIL or MAX AB climb speed is used. After takeoff, a constant pitch attitude of 12 degrees is held until 2500 feet AGL. A level acceleration to climb speed is then made. In some cases, climb airspeed will be reached prior to gaining 2500 feet AGL. This technique was developed for performance calculations only and not as an operational procedure.

REFER TO FIGURES A3-1 AND A3-2.

Enter chart with temperature (A), proceed horizontally to altitude (B), and then down to intersect GW (C). From there, proceed horizontally to drag baseline and parallel nearest guideline to drag index (D). Finally, proceed horizontally to read fuel consumed (E), time (F), and distance (G).

SAMPLE PROBLEM (MIL, FIGURE A3-1).

A.	Temperature	=	40°C
B.	Altitude	=	2000 feet
C.	GW	=	33,000 pounds
D.	Drag index	=	150
E.	Fuel consumed	=	385 pounds
F.	Time	=	2.1 minutes
G.	Distance	=	9.0 nm

CRUISE CEILINGS AND OPTIMUM CRUISE ALTITUDE

MIL cruise ceiling, MIL service ceiling, and optimum cruise altitude, are shown in figure A3-3. All data is based on use of optimum cruise mach number. A correction factor to adjust MIL cruise ceiling to service ceiling is given on the chart.

REFER TO FIGURE A3-3.

Enter upper portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read cruise altitude (C). Enter lower portion of chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read MIL cruise ceiling (D).

SAMPLE PROBLEM.

A. GW	=	33,000 pounds
B. Drag index	=	230
C. Optimum cruise altitude	=	33,110 feet
D. MIL cruise ceiling (300 fpm)	=	34,180 feet
E. MIL service ceiling (100 fpm)	=	34,850 feet

MIL CLIMB

Figure A3-4 contains MIL climb data. Fuel consumed data is shown in sheet 1 and time and distance data is shown in sheet 2. The data is for climbs starting at sea level, but performance data for climbs from any altitude to a higher altitude may also be determined. The climb schedules are defined by airspeed/mach number. Climb at the scheduled airspeed to the scheduled mach number, then maintain the mach number to the desired altitude. When starting a climb at an altitude above the airspeed/mach number transition point, climb at the scheduled mach number. The schedules are tabulated as a function of drag index and are selected to maintain maximum fuel efficiency while still providing near maximum rate of climb. To obtain data for climb to cruise ceiling, use the dashed cruise ceiling drag index lines.

REFER TO FIGURE A3-4.

Enter sheet 1 of chart at initial GW (A), proceed horizontally to final altitude (B), vertically to drag index (C), and horizontally to air deviation temperature (D). Continue horizontally to read fuel consumed (E). If initial altitude is above sea level, reenter chart at initial GW (A), proceed horizontally to initial altitude (F), and continue as above to read fuel used (G). The difference between fuel consumed to final altitude and fuel used to initial altitude is the fuel used to climb from initial to final altitude. Climb time and distance are found in a similar manner from sheet 2.

SAMPLE PROBLEM.

MIL climb to optimum cruise altitude.

A. Initial GW	=	33,000 pounds
B. Final altitude	=	33,110 feet (cruise altitude for 33,000 pounds, drag index = 230)
C. Drag index	=	230
D. Air temperature deviation	=	+10°C
E. Fuel consumed to final altitude	=	1353 pounds
F. Initial altitude	=	2500 feet
G. Fuel consumed to initial altitude	=	72 pounds
• Fuel consumed to climb 1353 – 72	=	1281 pounds

Note that the cruise altitude used above is based on an initial climb GW of 33,000 pounds. This cruise altitude should be adjusted to account for the fuel consumed during climb and the climb fuel recomputed. Initial GW is unchanged.

A. Initial GW	=	33,000 pounds
H. Revised final altitude	=	33,950 feet based on end-of-climb weight (33,000 – 1281 = 31,719 from figure A3-3)
C. Drag index	=	230
D. Air temperature deviation	=	+10°C
I. Fuel consumed to final altitude	=	1419 pounds
F. Initial altitude	=	2500 feet
G. Fuel consumed to initial altitude	=	72 pounds
• Fuel consumed in climb	=	1419 – 72 = 1347 pounds
• Distance in climb	=	89 – 2 = 87 nm
• Time in climb	=	11.4 – 0.4 = 11.0 minutes
• Climb speed (for drag index = 230)	=	356 KIAS/0.80 mach

MAX AB CLIMB

Figure A3-5, sheets 1 and 2, presents MAX AB climb data. The climb schedule given on sheet 1 results in minimum time-to-climb to altitude at subsonic speeds.

REFER TO FIGURE A3-5.

Refer to instructions under MIL CLIMB, above.

MIL Climbout Fuel, Time, and Distance

DATA BASIS FLIGHT TEST

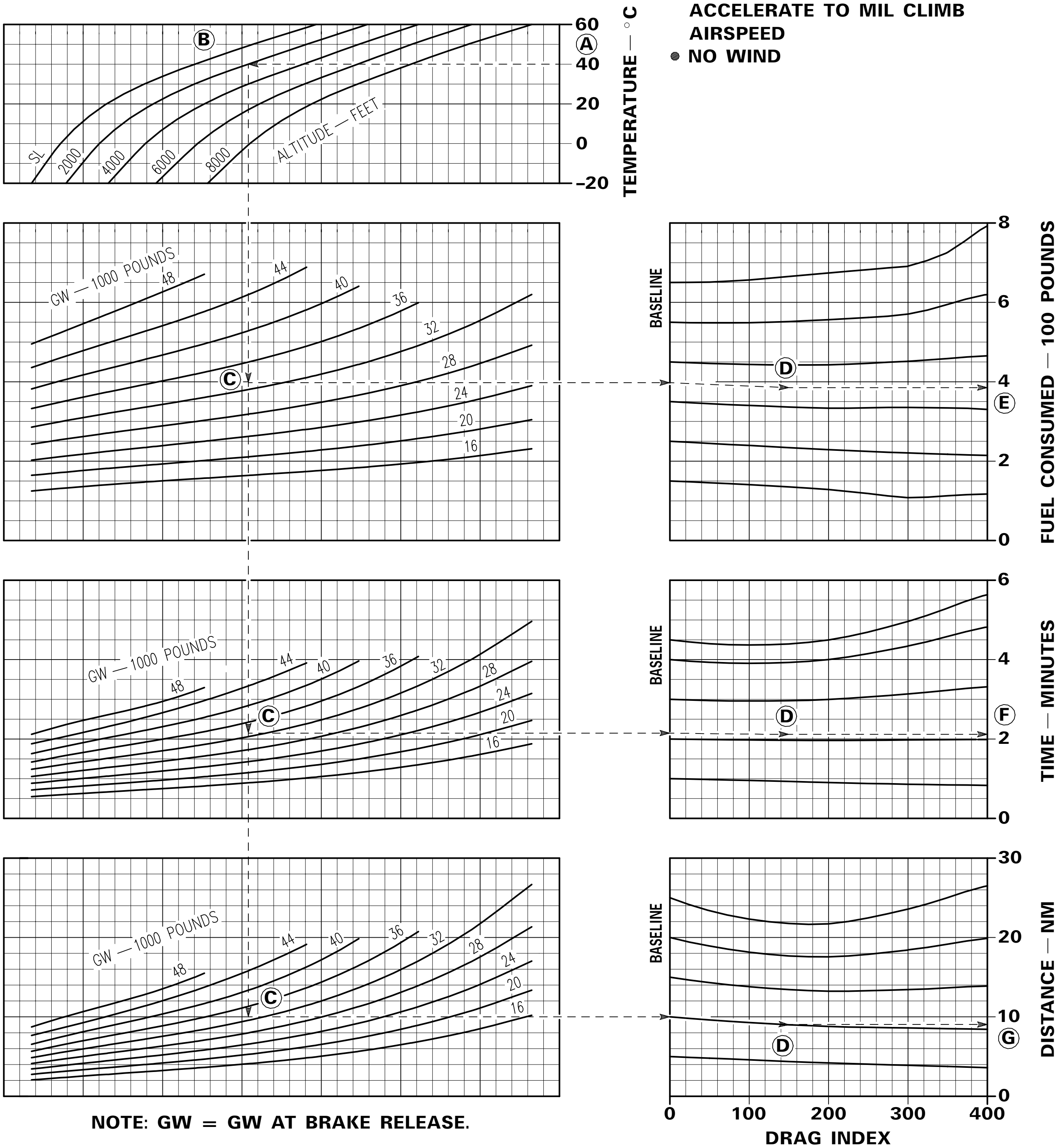
ENGINE F100–PW–229

CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE TO MIL CLIMB AIRSPEED
- NO WIND



NOTE: GW = GW AT BRAKE RELEASE.

1F–16CJ–1–1–1027A@

Figure A3-1.

MAX AB Climbout Fuel, Time, and Distance

DATA BASIS FLIGHT TEST

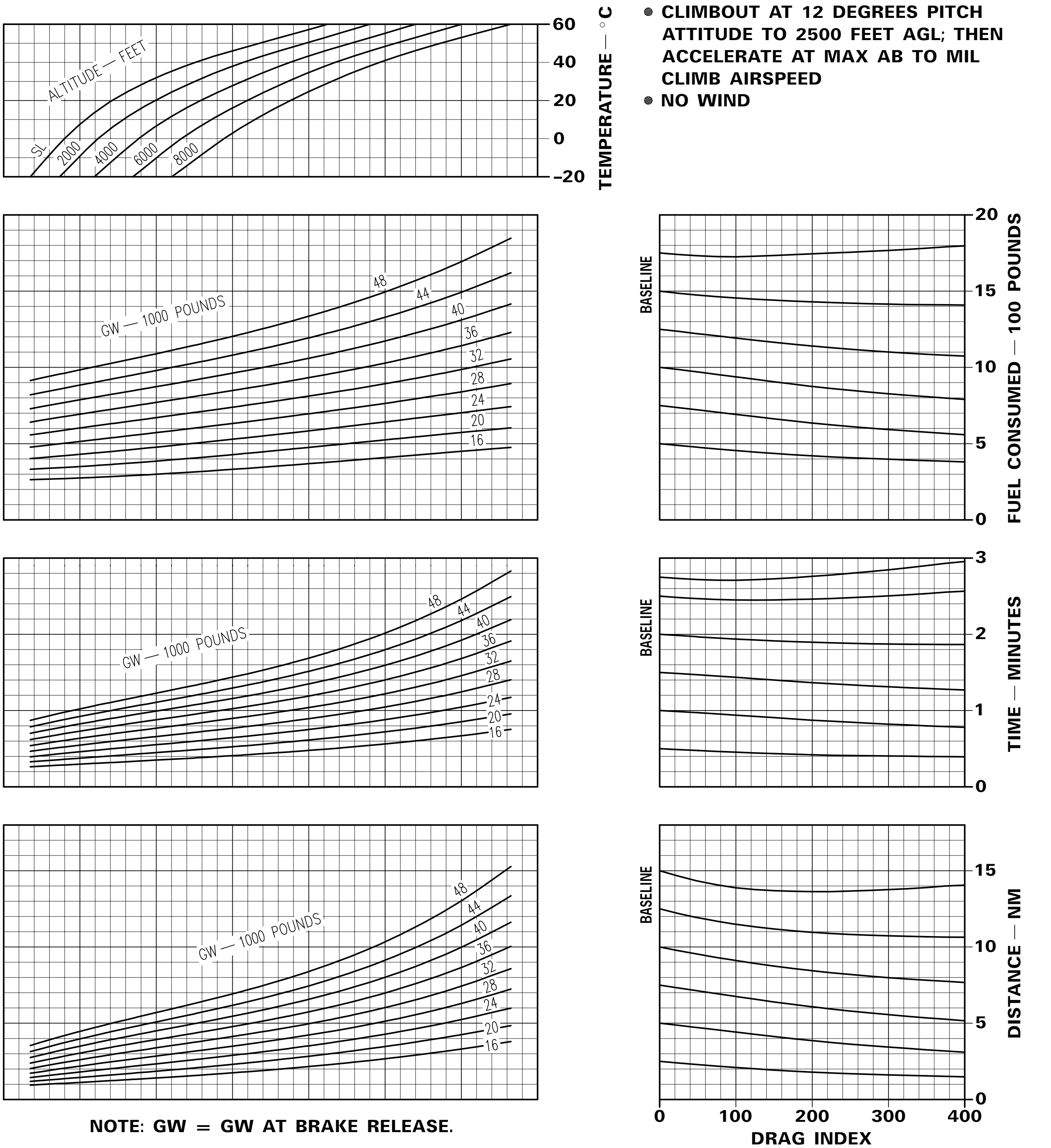
ENGINE F100–PW–229

CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE AT MAX AB TO MIL CLIMB AIRSPEED
- NO WIND



NOTE: GW = GW AT BRAKE RELEASE.

1F–16CJ–1–1–1028A@

Figure A3-2. (Sheet 1)

MAX AB Climbout Fuel, Time, and Distance

DATA BASIS FLIGHT TEST

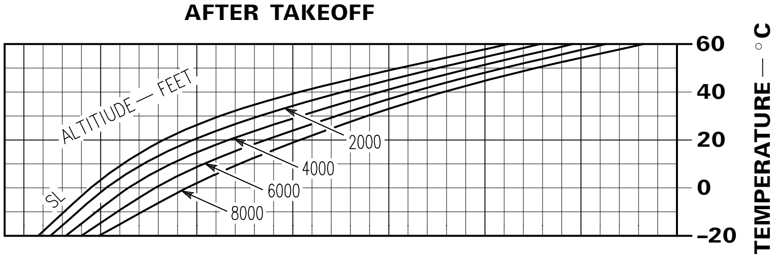
ENGINE F100–PW–229

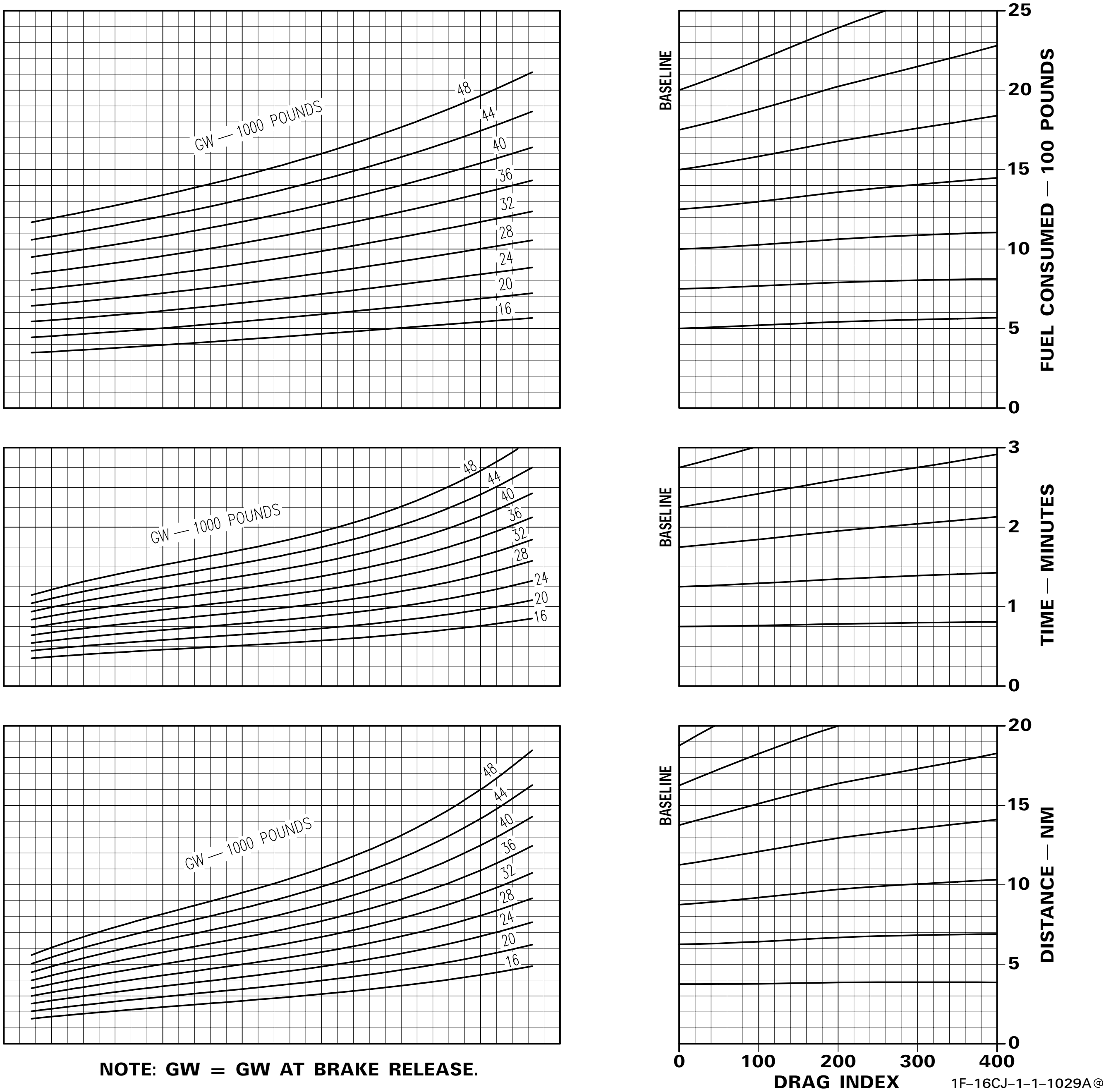
CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE AT MAX AB TO MAX AB CLIMB AIRSPEED
- NO WIND





NOTE: GW = GW AT BRAKE RELEASE.

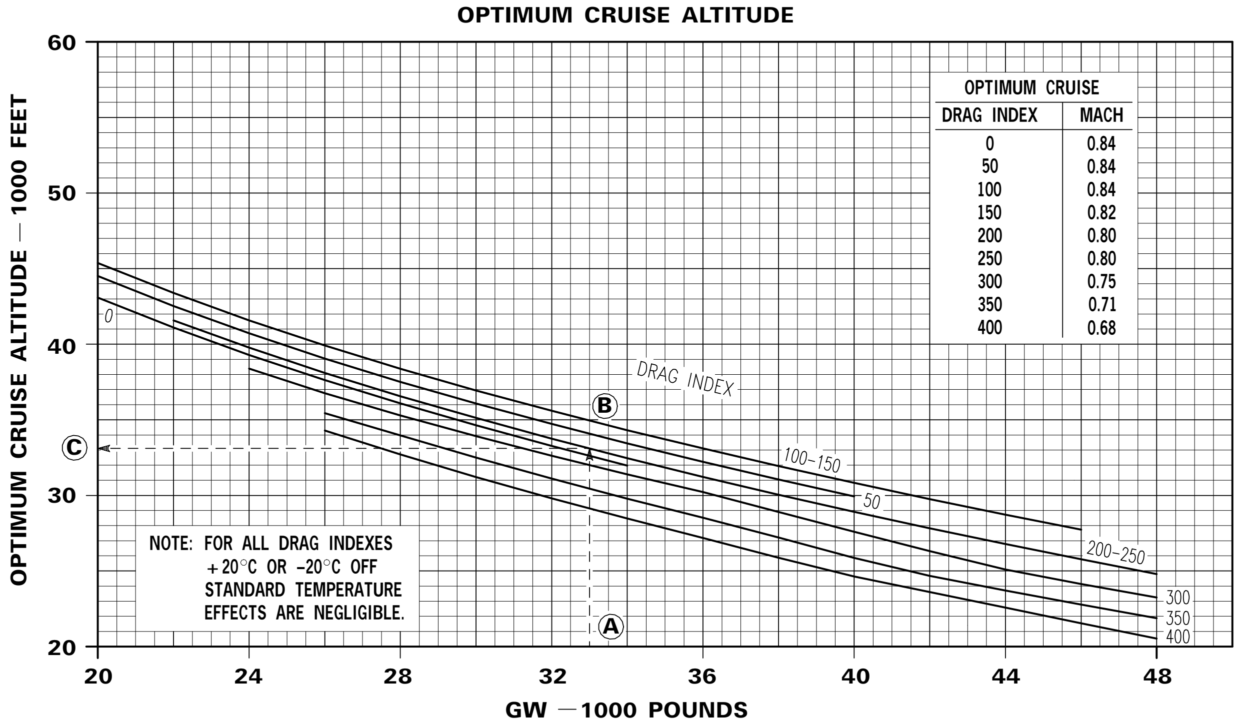
Figure A3-2. (Sheet 2)

Cruise Ceilings and Optimum Cruise Altitude

DATA BASIS FLIGHT TEST — **ENGINE F100–PW–229**

CONDITIONS:

- STANDARD DAY
- OPTIMUM CRUISE MACH NUMBER



OPTIMUM CRUISE	
DRAG INDEX	MACH
0	0.84
50	0.84
100	0.84
150	0.82
200	0.80
250	0.80
300	0.75
350	0.71
400	0.68

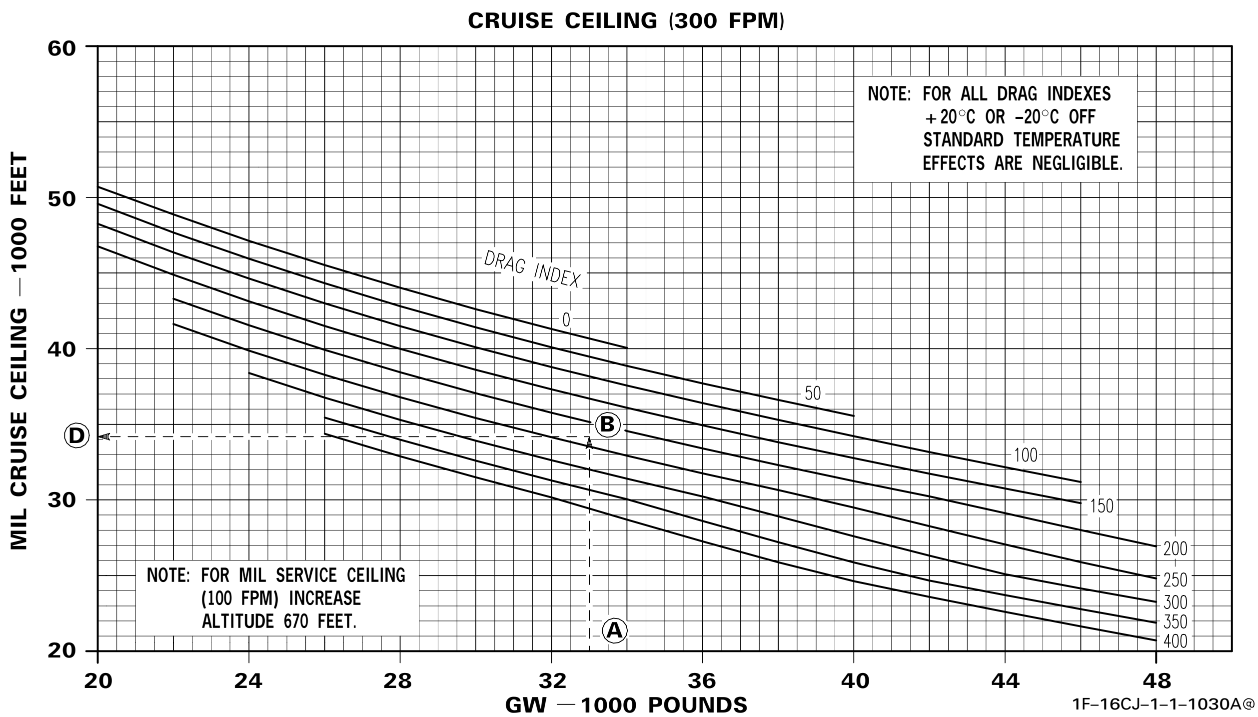
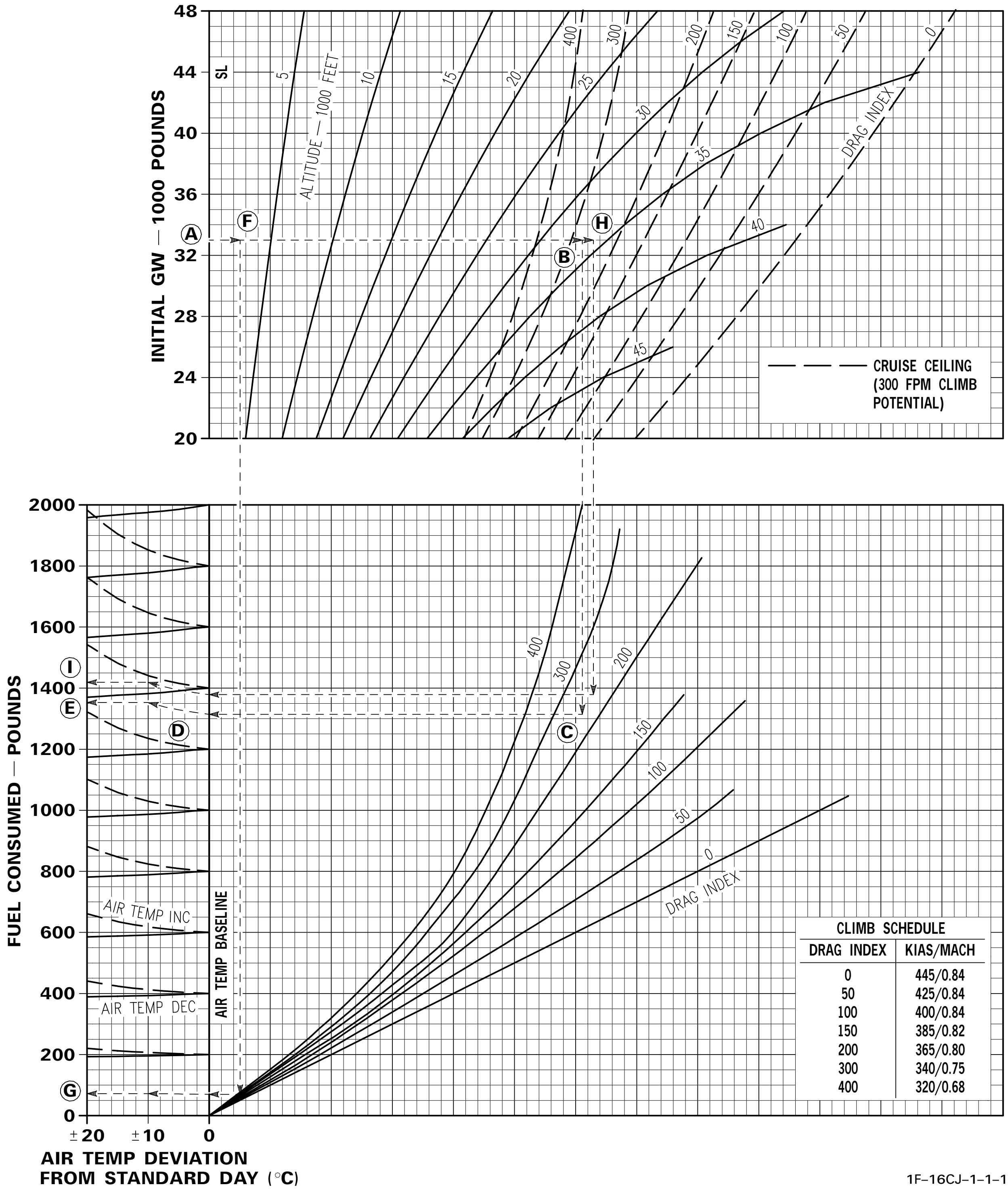


Figure A3-3.

MIL Climb — Fuel Consumed

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONDITIONS:
- STANDARD DAY



CLIMB SCHEDULE	
DRAG INDEX	KIAS/MACH
0	445/0.84
50	425/0.84
100	400/0.84
150	385/0.82
200	365/0.80
300	340/0.75
400	320/0.68

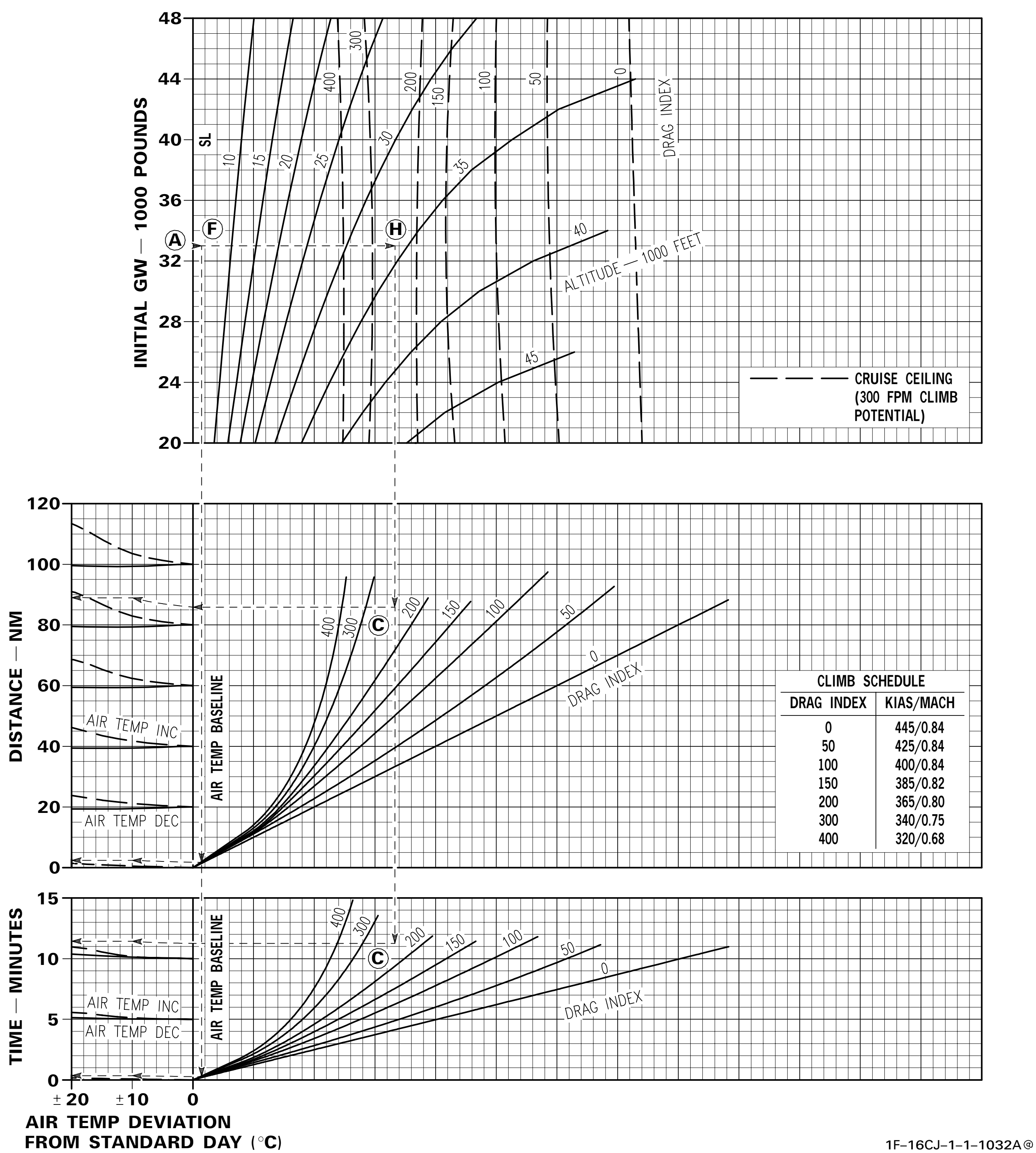
Figure A3-4. (Sheet 1)

MIL Climb — Distance and Time

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONDITIONS:

- **STANDARD DAY**



CLIMB SCHEDULE	
DRAG INDEX	KIAS/MACH
0	445/0.84
50	425/0.84
100	400/0.84
150	385/0.82
200	365/0.80
300	340/0.75
400	320/0.68

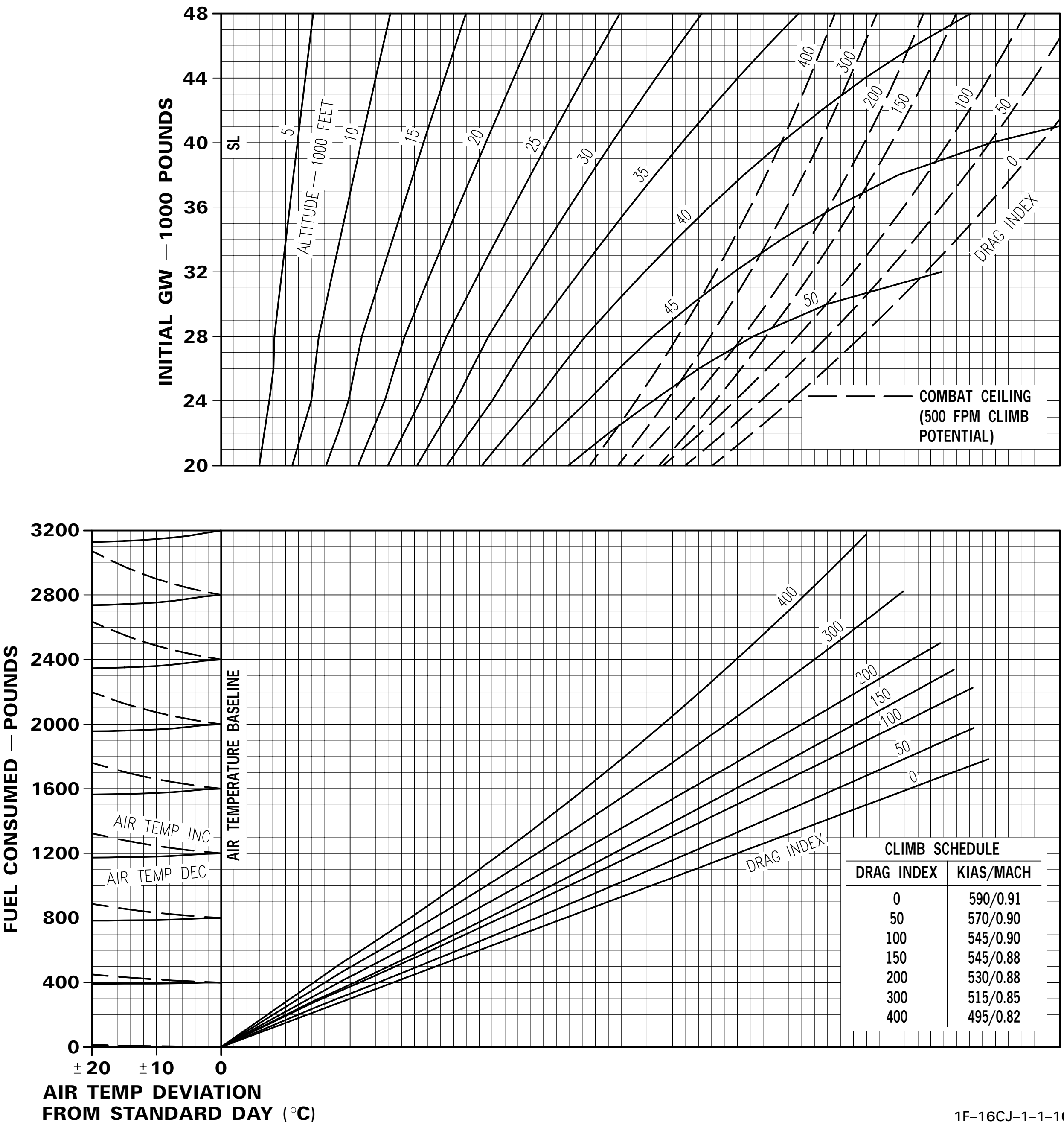
1F–16CJ–1–1–1032A@

Figure A3-4. (Sheet 2)

MAX AB Climb — Fuel Consumed

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONDITIONS:
- **STANDARD DAY**



CLIMB SCHEDULE

DRAG INDEX	KIAS/MACH
0	590/0.91
50	570/0.90
100	545/0.90
150	545/0.88
200	530/0.88
300	515/0.85
400	495/0.82

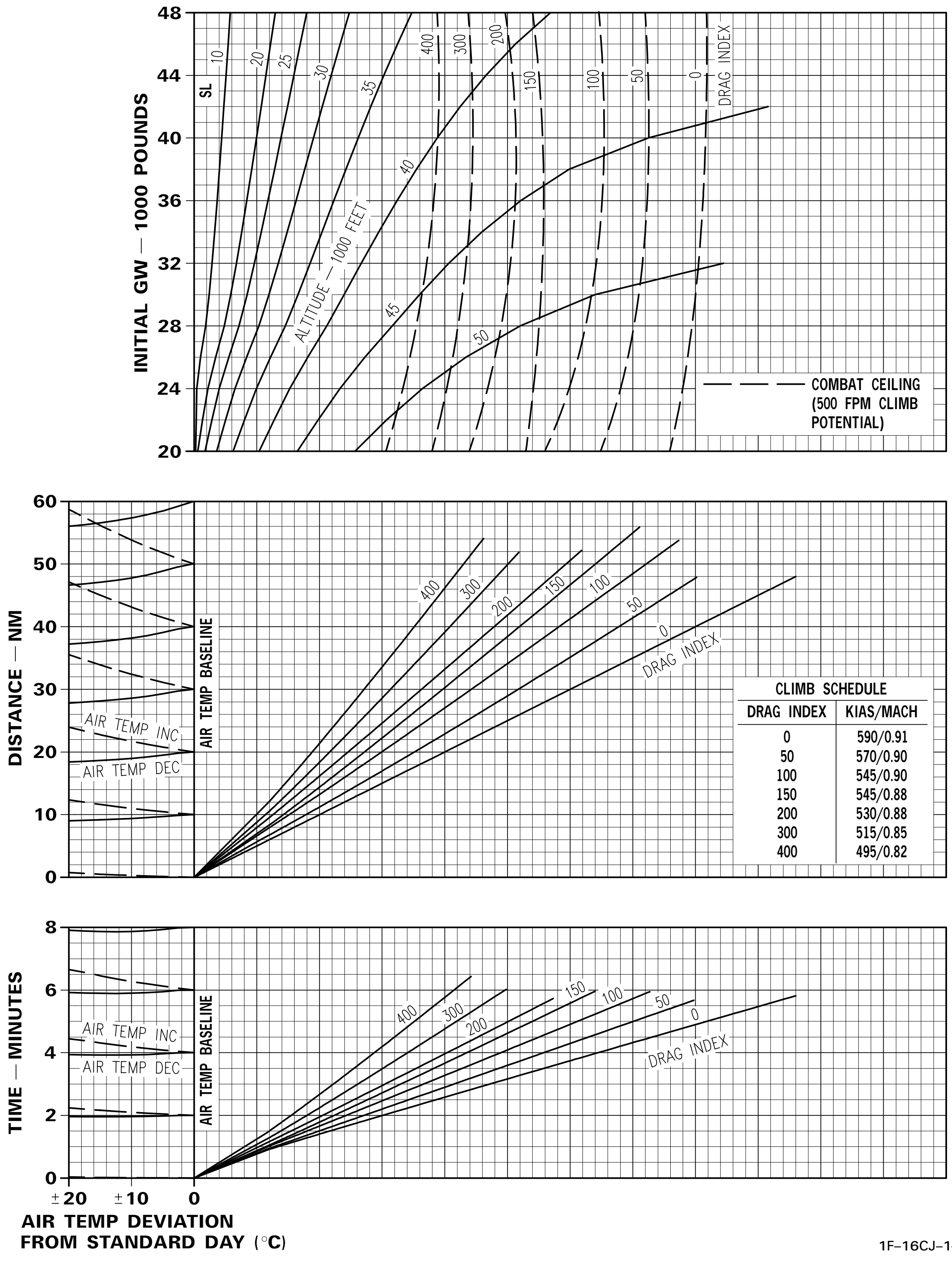
Figure A3-5. (Sheet 1)

MAX AB Climb — Distance and Time

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONDITIONS:

- **STANDARD DAY**



CLIMB SCHEDULE	
DRAG INDEX	KIAS/MACH
0	590/0.91
50	570/0.90
100	545/0.90
150	545/0.88
200	530/0.88
300	515/0.85
400	495/0.82

1F–16CJ–1–1–1034A@

Figure A3-5. (Sheet 2)

PART 4 — CRUISE

TABLE OF CONTENTS

LIST OF CHARTS

CRUISE DATA

The cruise data enables the mission planner to calculate the optimum cruise performance available for most combinations of flight conditions. It is apparent from the Subsonic Cruise tables that the GW's for some of the drag indexes are not realistic. This data is only used to give good results when extrapolation of the data is required. One conversion chart is supplied as an aid in computing TAS and fuel flow. The following considerations will assist in selecting the combination of flight conditions and techniques which will result in required mission performance:

- Optimum Mach/Optimum Altitude: A cruise-climb technique is required. Mach remains constant throughout the cruise while altitude increases as fuel is consumed. Changes in optimum mach due to changes in GW are insignificant. Use of this technique will result in maximum attainable range (including maximum aircraft capability).
- Optimum Mach/Constant Altitude: Mach number is decreased as fuel is consumed. This cruise technique will yield maximum cruise performance at a given altitude.
- Constant Mach/Constant Altitude: Cruise at a given mach and altitude condition. This technique does not usually provide maximum performance but is often used due to time and flightpath constraints.

OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE

Detailed optimum cruise-climb performance data is given in figure A4-1. Cruise data is shown as specific range and optimum altitude versus GW for lines of drag index. Optimum cruise mach numbers are tabulated on each drag index line. Fuel flow may be computed from figure A4-2.

REFER TO FIGURE A4-1.

Enter chart with cruise GW (A) and proceed vertically upward to drag index (B) in both the lower and upper portions of the chart. In the lower portion of the chart, proceed to the left from (B) to read specific range (C). In the upper portion of the chart, proceed to the left from (B) to read optimum cruise altitude (D). Optimum cruise mach number is obtained from the mach numbers indicated on the drag index lines in the lower portion of the chart.

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Drag index	=	230
C.	Specific range	=	0.105 nm per pound of fuel
D.	Optimum cruise altitude	=	33,110 feet
•	Optimum cruise mach	=	0.80

FUEL FLOW CONVERSION

The Fuel Flow Conversion chart, figure A4-2, is used to convert specific range and speed into fuel flow.

REFER TO FIGURE A4-2.

To convert specific range into fuel flow, enter chart with mach number (A), proceed to the right to temperature (standard day temperature is shown on figure NO TAG) (B), and then proceed upward, reading KTAS at (C). Continue to specific range line (D), and finally, proceed to the left to read fuel flow (E).

SAMPLE PROBLEM.

A.	Optimum cruise altitude	=	33,110 feet
•	Optimum cruise mach	=	0.80
B.	Temperature	=	–56.5°C (Standard day temperature is shown)
C.	KTAS	=	458
D.	Specific range	=	0.105 nm per pound of fuel
E.	Fuel flow	=	4174 pounds per hour

SUBSONIC CRUISE TABLES

The Subsonic Cruise tables, figure A4-3, present dry thrust fuel flow data for a range of constant cruise altitudes (sea level-45,000 feet), true airspeeds (180-690 knots), GW's (20,000-48,000 pounds), and drag indexes (0-400). True airspeeds and fuel flows for maximum range/endurance cruise at constant altitude and drag index are presented for a range of GW's. If Vmin (minimum true airspeed based on MIL) is greater than 180 knots, then Vmin and the fuel flow at Vmin are shown. Vmax (maximum true airspeed based on MIL) and the fuel flow at Vmax are also shown. Temperature effect factors are presented for ±20°C ambient temperature deviation from standard. Cruise KTAS are presented in increments of 30 KTAS. The fuel flows are shown in PPH; therefore, the distance flown and fuel consumed at some specified cruise time may be quickly evaluated.

REFER TO FIGURE A4-3.

To find fuel flow for cruise at a constant true airspeed and altitude, enter the table with appropriate drag index, KTAS, and GW. Then read the fuel flow in PPH. To find fuel flow and KTAS at constant altitude cruise for Vmin, Vmax, maximum endurance, or maximum range, enter the table with drag index and GW. Then read standard fuel flow and KTAS for the specified condition. Temperature effect factors are found on the right side of each chart. Multiply standard day fuel flows by their respective factor to get final fuel flows for ±20°C deviation from standard. To compute fuel flows for other temperatures, simply ratio the difference between standard day values and ±20°C values for the particular temperature deviation.

True airspeeds for Vmin, Vmax, maximum endurance, and maximum range are affected by ambient temperature and correction factors for these airspeeds are presented on the right side of the chart. These factors are used to correct KTAS in the same manner as described for fuel flows. If the factors are greater than 1, final fuel flow and KTAS increases. If the factors are less than 1, final fuel flow and KTAS decreases.

SAMPLE PROBLEM.

A.	Altitude	=	30,000 feet
B.	Drag index	=	0
C.	GW	=	20,000 pounds
D.	KTAS	=	360
E.	Standard day ambient temperature	=	–44°C
F.	Ambient temperature	=	–34°C
G.	Temperature deviation	=	10°C hot

Find fuel consumed and time required to cruise at 360 knots for 180 nm:

H.	Standard day fuel flow	=	1809 PPH
I.	Temperature effect fuel flow factor at +20°C and 360 KTAS	=	1.070
J.	Fuel flow at +20°C hot is 1.070×1809	=	1936 PPH
K.	Fuel flow for ambient temperature of −34°C is $1809 + (127 \times \frac{10}{20})$	=	1873 PPH
L.	Time to travel 180 nm at 360 KTAS is $\frac{180}{360}$	=	0.5 hour
M.	Fuel consumed in 0.5 hour of cruise at 360 KTAS is 1873×0.5	=	937 pounds

Find fuel consumed and air distance traveled for maximum range cruise for 30 minutes:

N.	Standard day maximum range airspeed	=	433 KTAS
O.	Standard day fuel flow	=	2091 PPH
P.	Temperature effect factor for KTAS at +20°C	=	1.043
Q.	Temperature effect fuel flow factor at +20°C	=	1.046
R.	KTAS at 20°C hot is 1.043×433	=	452
S.	Fuel flow at 20°C hot is 1.046×2091	=	2187 PPH
T.	KTAS for ambient temperature of −34°C is $433 + (19 \times \frac{10}{20})$	=	443
U.	Fuel flow for ambient temperature of −34°C is $2091 + (96 \times \frac{10}{20})$	=	2139 PPH
V.	Air distance traveled in 30 minutes at 443 KTAS is $\frac{443}{60} \times 30$	=	222 nm
W.	Fuel consumed in 30 minutes of cruise at 443 KTAS is $\frac{2139}{60} \times 30$	=	1070 pounds

To find the fuel flow and KTAS for maximum endurance cruise, use the method outlined above for maximum range cruise; then loiter time = fuel consumed/ fuel flow.

REFER TO FIGURE A4-3.

If an average bank angle of 30 degrees were used in the above problem, an effective GW of 23,100 pounds would have to be used to enter the chart. Find the effective GW by entering the lower right plot with GW (A), follow the guidelines to bank angle (B), and read effective GW (C).

SAMPLE PROBLEM.

A.	GW	=	20,000 pounds
B.	Bank angle	=	30 degrees
C.	Effective GW	=	23,100 pounds

DIVERSION DECISION

The Diversion Decision – Divert and Diversion Decision – Loiter, figure A4-4, contain range and time available data to be used in deciding whether to divert to another base or wait (loiter) until the runway is reopened. Data is given for fuel quantities up to 2000 pounds and for initial altitudes from sea level to 40,000 feet. Range and time available by staying at initial altitude or by climbing to optimum altitude are given. Range and time for climbs to optimum altitude, cruise or loiter, and descents to sea level are included in all data as applicable. No reserve fuel is included in the data.

SAMPLE PROBLEM.

Assume that you have arrived over base at 5000 feet MSL with only 600 pounds of fuel remaining and are informed that the runway is closed due to an accident. Twenty to 30 minutes is required to open the runway. Can you wait (loiter) for the runway to open, or should you divert to a base only 50 nm away? Checking figure A4-4 yields the following information:

- Range Available at 5000 feet MSL = 66 nm (cruise at mach = 0.46, begin enroute descent 16 nm from destination with 104 pounds fuel used in descent).
- Range Available Using Optimum Altitude = 88 nm (MIL climb at 423 KIAS or optimum altitude mach number, whichever is less, to 30,000 feet, cruise at mach 0.72, and begin enroute descent 72 nm from destination with 306 pounds fuel used in descent).

- Loiter Time Available at 5000 feet MSL = 15 minutes (loiter at mach = 0.35, begin descent 13 nm from destination with 87 pounds fuel used in descent).
- Loiter Time Available Using Optimum Altitude = 16 minutes (MIL climb at 423 KIAS or optimum altitude mach number, whichever is less, to 10,000 feet, loiter at mach = 0.38, begin descent 24 nm from destination with 149 pounds fuel used in descent).

Based on this information, a decision to divert to the nearby base would be prudent. Maximum holding time using all remaining fuel, optimum altitude, and an IDLE descent would yield only 16 minutes – too little. Even remaining at 5000 feet MSL, a range of 66 nm is available which would leave a small fuel reserve at the alternate base. Even more reserve fuel would remain if optimum altitude (30,000 feet) were used.

If range and time available (which require a fuel reserve) are needed, find the range and time which would be available if the desired reserve were consumed and deduct those values from range and time available for the total fuel on board. For instance, if 200 pounds reserve fuel had been required in the above problem, 26 nm would be deducted from the 66 nm range available by cruising at 5000 feet. The other range and times available would be adjusted in the same manner. However, note, for this sample problem, 50 nm is not obtainable with 200 pounds reserve.

BEST CRUISE ALTITUDE FOR SHORT RANGE MISSION

For short missions or mission legs, fuel consumption can be minimized by climbing to a lower-than-optimum cruise altitude and descending on course. For distances of 250 nm or less, use of a lower-than-optimum cruise altitude will result in lower overall fuel usage. Figure A4-5 contains information defining the best altitude to use for these short distances as a function of initial GW and distance. For distances greater than 250 nm, optimum cruise altitude should be used. Fuel consumption is given in figure A4-5 as a function of drag index for each initial GW and distance. Also provided in the chart is the range from destination at which to begin a penetration descent or maximum range descent. All data shown is based on beginning at sea level, climbing to the indicated altitude using MIL, cruising at optimum mach at the indicated altitude to the descent point, and executing a penetration descent (300 KIAS, IDLE, and speedbrakes open) or maximum range descent (at schedule KIAS, IDLE, and with speedbrakes closed). MIL climb speed for any drag index may be obtained from Part 3 and optimum KTAS for constant altitude cruise from the Subsonic Cruise Tables. Further guidance to establish the climb and cruise conditions recommended in the Best Altitude for Short Range Mission chart is available through the FCC cruise energy management guidance system. Climb speed for most economical climb may be established through use of the CRUS HOM mode on the upfront control set. Climb speed guidance is displayed on the HUD speed scale (scales switch set to VV/VAH). Once at altitude, optimum cruise mach can be established by using the CAS, TAS, or GND speed guidance displayed on the HUD when the CRUS RNG mode is selected on the upfront control set.

REFER TO FIGURE A4-5.

Enter figure A4-5 with start climb GW (A), desired total mission range (B), and drag index (C). With these given conditions, read best cruise altitude (D), fuel consumed (E), and penetration descent range (F).

SAMPLE PROBLEM.

A.	Start climb GW	=	28,000 pounds
B.	Total mission range	=	150 nm
C.	Drag index	=	200
D.	Best cruise altitude	=	32,100 feet
E.	Fuel consumed	=	1543 pounds
F.	Penetration descent range	=	19.6 nm

Optimum Cruise

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

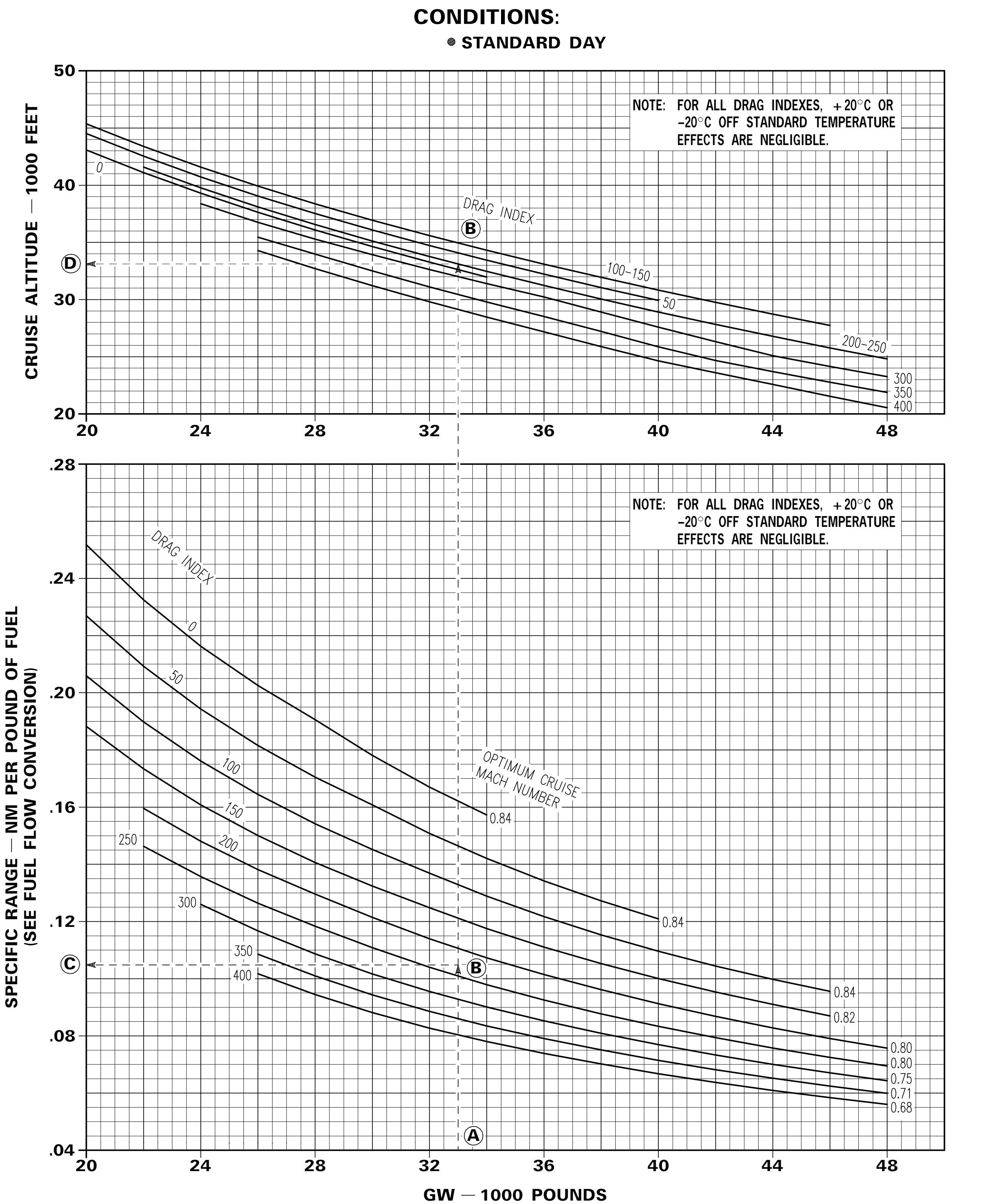


Figure A4-1.

Fuel Flow Conversion

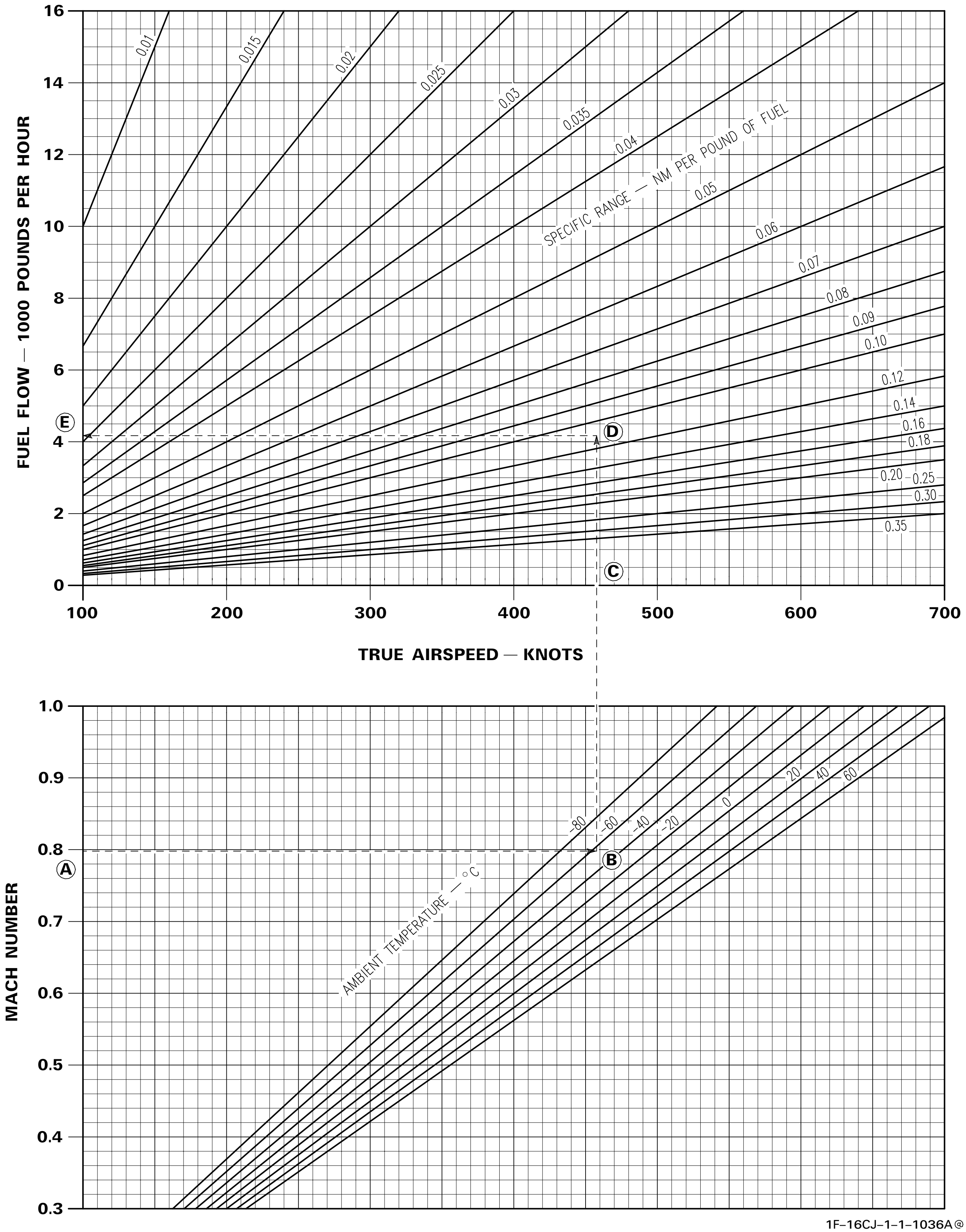


Figure A4-2.

Subsonic Cruise — Effects of Bank Angle

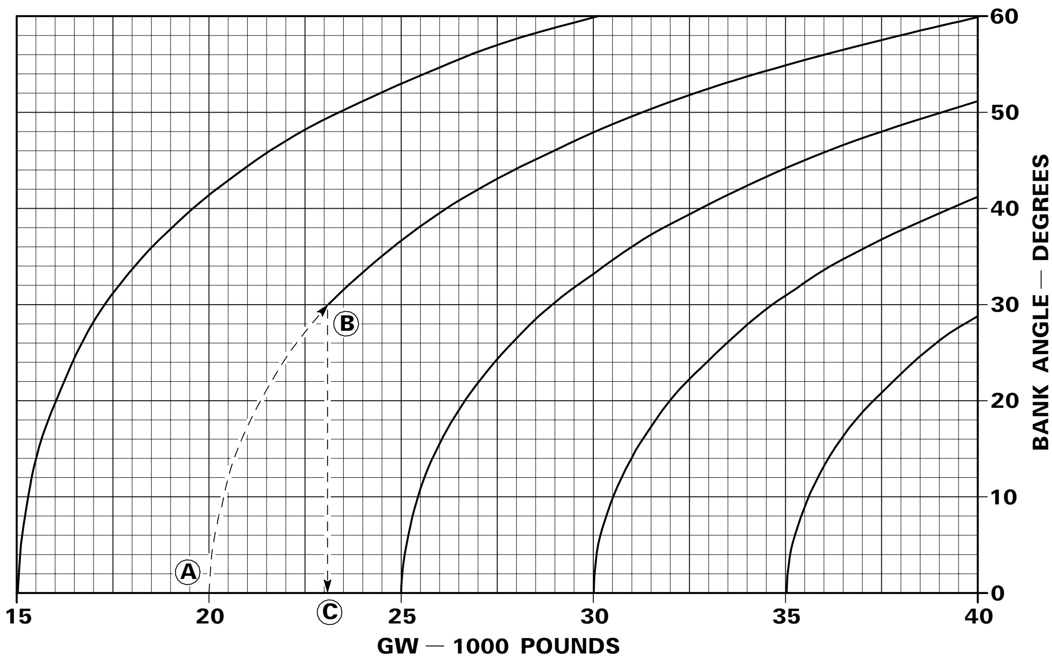


Figure A4-3. (Sheet 1)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	––––	––––	––––	––––	––––	––––						
VMIN	–––	–––	–––	–––	–––	–––	–––	–––						
180	2453	2712	2997	3307	3644	4013	4394	4789					1.089	0.922
210	2351	2513	2706	2925	3164	3421	3694	3997					1.072	0.939
240	2465	2576	2701	2849	3009	3184	3390	3606					1.058	0.959
270	2688	2769	2864	2969	3084	3207	3352	3504					1.048	0.976
300	2995	3061	3133	3213	3300	3398	3505	3618					1.040	0.985
330	3344	3396	3455	3521	3592	3670	3753	3844					1.034	0.992
360	3757	3799	3846	3897	3955	4019	4089	4163					1.027	0.996
390	4198	4234	4272	4314	4360	4410	4465	4527					1.022	1.008
420	4746	4778	4814	4853	4892	4932	4976	5023					1.005	1.017
450	5339	5365	5399	5436	5475	5518	5558	5597					1.000	1.021
480	6006	6021	6039	6068	6099	6133	6170	6209					0.992	1.025
510	6795	6807	6822	6841	6862	6887	6915	6945					0.975	1.030
540	7728	7736	7746	7759	7775	7791	7810	7830					0.970	1.038
570	8905	8912	8920	8930	8943	8958	8973	8990					0.953	1.093
600	11,060	11,064	11,069	11,076	11,084	11,093	11,104	11,116					0.898	1.246
630	15,884	15,891	15,906	15,922	15,941	15,961	15,984	16,009					0.812	1.293
660														
MIL	17,347	17,347	17,346	17,346	17,346	17,346	17,345	17,345					0.868	0.964
VMAX	636	636	636	636	636	636	635	635					1.012	0.966
MAX ENDURANCE														
KTAS	202	213	223	232	241	250	258	265					1.034	0.965
FUEL FLOW	2346	2513	2679	2844	3009	3173	3337	3499					1.047	0.952
MAX RANGE														
KTAS	279	294	309	323	331	334	348	361					1.034	0.965
FUEL FLOW	2772	2998	3221	3440	3600	3711	3948	4180					1.047	0.952

*TEMPERATURE DEVIATION FROM STANDARD DAY. –––VMIN LESS THAN 180 KTAS.

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––			
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––			
180	2529	2788	3074	3384	3723	4095	4479	4880	5356	5881	6520		1.086	0.916
210	2463	2625	2815	3032	3266	3525	3800	4104	4428	4777	5165		1.073	0.934
240	2620	2730	2853	3000	3159	3331	3532	3746	3975	4232	4504		1.064	0.957
270	2894	2973	3066	3170	3283	3404	3546	3697	3858	4033	4234		1.050	0.975
300	3257	3320	3391	3468	3554	3651	3755	3867	3986	4117	4264		1.038	0.983
330	3669	3720	3778	3841	3911	3986	4068	4156	4254	4358	4469		1.030	0.991
360	4148	4189	4234	4285	4341	4404	4471	4543	4620	4702	4789		1.024	0.998
390	4660	4694	4731	4772	4817	4865	4919	4980	5045	5114	5187		1.020	1.012
420	5290	5321	5355	5393	5431	5471	5513	5559	5608	5665	5728		1.004	1.025
450	5976	6004	6041	6082	6125	6173	6218	6260	6306	6355	6408		0.996	1.025
480	6837	6852	6870	6902	6938	6976	7017	7062	7109	7149	7193		0.981	1.026
510	7825	7833	7844	7859	7877	7901	7927	7956	7989	8026	8066		0.974	1.035
540	8988	8990	8996	9004	9016	9027	9046	9066	9088	9113	9140		0.965	1.046
570	10,491	10,493	10,497	10,504	10,513	10,524	10,537	10,551	10,572	10,593	10,617		0.947	1.114
600	13,503	13,501	13,500	13,501	13,503	13,507	13,512	13,519	13,527	13,540	13,557		0.877	1.153
630														
660														
MIL	17,351	17,351	17,351	17,351	17,351	17,351	17,351	17,351	17,351	17,351	17,351		0.860	0.974
VMAX	617	617	617	617	617	617	617	617	617	617	617		1.012	0.967
MAX ENDURANCE														
KTAS	198	206	216	225	234	242	250	258	264	271	279		1.034	0.965
FUEL FLOW	2445	2623	2800	2977	3154	3329	3502	3676	3851	4030	4210		1.047	0.952
MAX RANGE														
KTAS	265	276	289	301	313	324	331	338	351	363	375		1.034	0.965
FUEL FLOW	2835	3040	3266	3483	3702	3910	4077	4256	4497	4738	4978		1.047	0.952

Figure A4-3. (Sheet 2)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST | **CONDITIONS:** | **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	2604	2865	3150	3462	3802	4177	4564	4971	5450	5984	7324	9160	1.084	0.917
210	2575	2736	2925	3139	3368	3628	3906	4211	4536	4889	5689	6565	1.075	0.934
240	2776	2884	3005	3150	3308	3476	3675	3887	4112	4372	4932	5584	1.062	0.954
270	3100	3177	3269	3371	3480	3599	3740	3890	4050	4223	4631	5086	1.048	0.973
300	3519	3580	3649	3724	3807	3902	4005	4115	4233	4363	4660	4989	1.035	0.983
330	3995	4045	4101	4163	4230	4303	4382	4468	4564	4667	4891	5145	1.027	0.993
360	4539	4579	4623	4672	4727	4788	4854	4924	4999	5079	5258	5461	1.021	1.001
390	5122	5154	5191	5230	5274	5321	5374	5433	5497	5564	5712	5888	1.018	1.016
420	5841	5873	5908	5947	5986	6028	6075	6125	6181	6244	6384	6541	0.999	1.026
450	6706	6733	6770	6810	6853	6900	6946	6987	7032	7081	7189	7325	0.984	1.024
480	7718	7730	7748	7781	7817	7857	7900	7946	7995	8037	8132	8238	0.980	1.028
510	8927	8931	8938	8950	8966	8990	9017	9046	9078	9113	9193	9280	0.969	1.041
540	10,350	10,345	10,345	10,347	10,353	10,360	10,379	10,399	10,421	10,447	10,505	10,577	0.964	1.053
570	12,224	12,221	12,220	12,222	12,226	12,233	12,240	12,250	12,268	12,286	12,330	12,381	0.941	1.125
600	16,175	16,166	16,158	16,151	16,147	16,144	16,143	16,143	16,145	16,152	16,180	16,215	0.857	1.170
630														
660														
MIL	17,379	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,379	0.853	0.979
VMAX	604	604	604	604	604	604	604	604	604	604	604	604	1.010	0.967
MAX ENDURANCE														
KTAS	197	206	216	224	232	240	248	256	264	271	284	297	1.034	0.965
FUEL FLOW	2543	2730	2918	3106	3292	3476	3661	3846	4032	4223	4605	4985	1.047	0.952
MAX RANGE														
KTAS	260	267	279	291	301	311	321	331	340	350	369	380	1.034	0.965
FUEL FLOW	2981	3141	3378	3608	3821	4040	4263	4477	4695	4932	5381	5725	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	2679	2942	3226	3539	3881	4259	4650	5061	5544	6086	7451	9301	1.083	0.918
210	2688	2847	3034	3243	3470	3732	4011	4318	4645	5002	5808	6696	1.073	0.936
240	2931	3037	3157	3301	3454	3621	3818	4027	4250	4511	5076	5732	1.057	0.958
270	3305	3381	3470	3569	3677	3794	3933	4083	4242	4413	4816	5268	1.044	0.976
300	3780	3840	3906	3979	4060	4154	4255	4364	4480	4608	4903	5230	1.031	0.986
330	4321	4371	4424	4484	4549	4619	4696	4780	4875	4976	5197	5449	1.022	0.995
360	4929	4968	5012	5060	5114	5173	5236	5305	5378	5456	5633	5846	1.018	1.004
390	5583	5615	5650	5688	5731	5778	5835	5899	5968	6042	6203	6382	1.015	1.019
420	6447	6480	6517	6557	6598	6640	6685	6735	6788	6850	6988	7145	0.989	1.025
450	7453	7481	7518	7559	7604	7652	7699	7742	7789	7839	7953	8093	0.982	1.029
480	8654	8663	8678	8709	8744	8782	8824	8869	8917	8958	9051	9164	0.977	1.036
510	10,104	10,104	10,107	10,115	10,130	10,154	10,182	10,213	10,247	10,284	10,368	10,461	0.965	1.047
540	11,806	11,795	11,787	11,783	11,783	11,783	11,799	11,817	11,838	11,861	11,915	11,983	0.961	1.057
570	14,026	14,018	14,012	14,008	14,007	14,009	14,012	14,018	14,034	14,052	14,094	14,145	0.938	1.144
600														
630														
660														
MIL	17,392	17,393	17,393	17,393	17,393	17,393	17,393	17,393	17,393	17,393	17,392	17,392	0.845	0.984
VMAX	594	594	594	594	594	594	594	594	594	594	594	594	0.999	0.968
MAX ENDURANCE														
KTAS	197	203	212	220	229	236	244	251	258	265	277	289	1.034	0.965
FUEL FLOW	2639	2835	3034	3231	3425	3620	3816	4012	4210	4408	4810	5212	1.047	0.952
MAX RANGE														
KTAS	254	264	271	282	292	302	312	321	330	337	356	363	1.034	0.965
FUEL FLOW	3087	3307	3486	3718	3951	4181	4413	4638	4871	5078	5566	5888	1.047	0.952

Figure A4-3. (Sheet 3)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	3018	3301	3616	3959	4341	4736	5152	5637	6188	6832	8477	10,594	1.090	0.920
210	2959	3143	3347	3572	3836	4116	4425	4753	5115	5512	6366	7330	1.074	0.934
240	3191	3308	3448	3601	3767	3960	4167	4388	4651	4928	5542	6231	1.057	0.956
270	3583	3670	3768	3874	3990	4128	4276	4434	4604	4797	5216	5722	1.043	0.975
300	4099	4163	4234	4314	4406	4506	4613	4727	4854	4996	5305	5660	1.029	0.986
330	4696	4748	4805	4868	4936	5010	5092	5186	5286	5392	5622	5908	1.023	0.996
360	5358	5401	5448	5500	5557	5619	5689	5765	5847	5935	6137	6361	1.017	1.005
390	6109	6147	6189	6234	6284	6340	6403	6470	6542	6619	6786	6973	1.006	1.014
420	7100	7136	7176	7217	7259	7304	7353	7407	7470	7540	7694	7866	0.988	1.030
450	8267	8303	8344	8388	8436	8482	8524	8570	8619	8672	8804	8960	0.979	1.036
480	9655	9667	9701	9738	9778	9823	9871	9922	9966	10,013	10,117	10,237	0.972	1.033
510	11,336	11,334	11,337	11,349	11,371	11,397	11,426	11,458	11,493	11,531	11,616	11,711	0.962	1.051
540	13,268	13,252	13,240	13,232	13,224	13,241	13,258	13,279	13,302	13,329	13,391	13,472	0.963	1.061
570	15,956	15,945	15,936	15,930	15,926	15,924	15,925	15,937	15,951	15,968	16,007	16,056	0.964	1.071
600														
630														
660														
MIL	17,373	17,373	17,373	17,373	17,373	17,373	17,373	17,373	17,373	17,373	17,373	17,372	0.842	0.989
VMAX	583	583	583	583	583	583	583	583	583	583	583	583	0.976	0.969
MAX ENDURANCE														
KTAS	199	206	214	222	229	237	244	251	257	264	275	287	1.034	0.965
FUEL FLOW	2933	3142	3345	3549	3753	3959	4166	4373	4581	4791	5212	5638	1.047	0.952
MAX RANGE														
KTAS	257	265	272	282	291	301	309	318	326	335	344	357	1.034	0.965
FUEL FLOW	3403	3594	3795	4036	4274	4513	4752	4990	5227	5469	5841	6300	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	3093	3377	3693	4038	4423	4823	5242	5730	6289	6936	8607	10,763	1.088	0.922
210	3070	3250	3450	3674	3939	4222	4532	4863	5227	5628	6493	7461	1.072	0.936
240	3343	3457	3596	3747	3912	4103	4308	4526	4790	5070	5689	6392	1.053	0.959
270	3785	3871	3966	4071	4185	4322	4469	4626	4794	4985	5400	5907	1.040	0.977
300	4358	4421	4490	4567	4658	4756	4861	4974	5099	5241	5549	5906	1.026	0.988
330	5021	5071	5126	5186	5253	5325	5404	5496	5595	5704	5942	6225	1.021	0.998
360	5755	5800	5850	5904	5964	6028	6098	6174	6254	6340	6539	6761	1.011	1.005
390	6622	6658	6698	6742	6791	6845	6906	6972	7043	7118	7290	7489	1.004	1.021
420	7748	7784	7825	7866	7909	7955	8006	8061	8124	8193	8344	8516	0.983	1.032
450	9085	9123	9165	9211	9261	9310	9354	9402	9453	9509	9642	9799	0.974	1.040
480	10,686	10,695	10,727	10,763	10,802	10,844	10,891	10,941	10,983	11,029	11,130	11,246	0.966	1.041
510	12,568	12,562	12,559	12,568	12,588	12,612	12,639	12,669	12,702	12,739	12,828	12,931	0.965	1.056
540	14,892	14,868	14,849	14,834	14,819	14,832	14,847	14,866	14,887	14,911	14,969	15,045	0.955	1.063
570														
600														
630														
660														
MIL	17,344	17,344	17,344	17,345	17,345	17,345	17,345	17,345	17,345	17,345	17,344	17,343	0.844	0.996
VMAX	568	568	568	568	568	568	568	568	568	568	568	567	0.962	0.975
MAX ENDURANCE														
KTAS	197	200	208	216	224	231	237	244	250	256	269	280	1.034	0.965
FUEL FLOW	3029	3238	3450	3663	3876	4091	4307	4523	4741	4959	5400	5846	1.047	0.952
MAX RANGE														
KTAS	250	258	265	273	282	291	300	308	316	323	333	346	1.034	0.965
FUEL FLOW	3472	3691	3885	4119	4365	4615	4861	5106	5353	5579	6000	6483	1.047	0.952

Figure A4-3. (Sheet 4)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 300	MIL		––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
	VMIN		–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180		3452	3770	4117	4505	4911	5332	5823	6390	7040	8737	10,932	1.096	0.923
	210		3356	3554	3776	4043	4327	4639	4973	5339	5743	6621	7604	1.072	0.935
	240		3605	3744	3894	4058	4246	4448	4664	4929	5213	5835	6554	1.055	0.961
	270		4071	4165	4268	4380	4516	4662	4818	4985	5173	5585	6091	1.038	0.978
	300		4678	4745	4820	4910	5006	5110	5221	5345	5486	5799	6152	1.025	0.989
	330		5395	5447	5506	5569	5640	5721	5816	5918	6027	6262	6541	1.019	0.998
	360		6220	6268	6321	6379	6442	6510	6583	6661	6745	6942	7169	1.008	1.010
	390		7169	7210	7256	7306	7364	7429	7499	7573	7653	7828	8024	1.000	1.024
	420		8450	8491	8532	8575	8621	8672	8727	8790	8860	9013	9184	0.982	1.039
	450		9984	10,026	10,072	10,122	10,170	10,214	10,262	10,313	10,368	10,499	10,653	0.968	1.041
	480		11,723	11,754	11,787	11,825	11,866	11,911	11,959	12,000	12,044	12,142	12,255	0.971	1.049
	510		13,919	13,911	13,917	13,938	13,962	13,990	14,022	14,057	14,096	14,182	14,280	0.959	1.055
	540		16,485	16,459	16,436	16,414	16,424	16,437	16,453	16,472	16,494	16,546	16,618	0.947	1.061
	570														
	600														
	630														
	660														
	MIL		17,254	17,256	17,257	17,259	17,259	17,259	17,258	17,256	17,255	17,252	17,247	0.845	1.009
	VMAX		548	549	549	549	549	549	549	549	549	548	547	0.958	0.982
	MAX ENDURANCE														
	KTAS		198	204	212	219	227	234	240	246	253	265	277	1.034	0.965
	FUEL FLOW		3329	3548	3769	3991	4214	4439	4664	4890	5117	5577	6042	1.047	0.952
	MAX RANGE														
	KTAS		251	259	265	275	283	292	300	307	313	326	340	1.034	0.965
	FUEL FLOW		3763	3992	4196	4453	4710	4961	5216	5466	5686	6184	6725	1.047	0.952

*TEMPERATURE DEVIATION FROM STANDARD DAY. –––VMIN LESS THAN 180 KTAS.

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 350	MIL			––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
	VMIN			–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180			3847	4195	4586	4998	5423	5917	6491	7143	8867	11,100	1.098	0.920
	210			3658	3878	4147	4432	4745	5084	5452	5858	6748	7754	1.073	0.934
	240			3891	4041	4203	4389	4589	4802	5069	5356	5981	6716	1.059	0.962
	270			4364	4465	4576	4710	4855	5010	5175	5363	5771	6275	1.037	0.978
	300			5001	5074	5161	5257	5359	5469	5595	5738	6048	6397	1.026	0.990
	330			5776	5835	5899	5970	6048	6142	6243	6349	6582	6858	1.016	1.001
	360			6687	6738	6794	6855	6921	6992	7071	7158	7371	7608	1.005	1.015
	390			7761	7806	7856	7911	7975	8043	8116	8195	8366	8559	0.995	1.026
	420			9176	9217	9261	9310	9364	9422	9490	9564	9727	9910	0.978	1.042
	450			10,896	10,941	10,989	11,037	11,079	11,125	11,175	11,229	11,356	11,507	0.968	1.042
	480			12,832	12,869	12,910	12,955	13,004	13,057	13,101	13,149	13,257	13,381	0.969	1.050
	510			15,286	15,288	15,307	15,329	15,355	15,384	15,417	15,454	15,536	15,630	0.957	1.057
	540														
	570														
	600														
	630														
	660														
	MIL			17,140	17,142	17,143	17,142	17,141	17,140	17,139	17,137	17,130	17,119	0.847	1.031
	VMAX			530	530	530	530	530	530	530	529	529	528	0.958	0.991
	MAX ENDURANCE														
	KTAS			204	211	219	226	233	240	246	253	265	277	1.034	0.965
	FUEL FLOW			3643	3873	4103	4335	4568	4802	5037	5274	5752	6237	1.047	0.952
	MAX RANGE														
	KTAS			253	261	269	278	287	296	303	310	325	336	1.034	0.965
	FUEL FLOW			4067	4314	4562	4838	5114	5388	5642	5908	6482	6978	1.047	0.952

Figure A4-3. (Sheet 5)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

	TOTAL FUEL FLOW LB/HR													
KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL			––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –		
VMIN			–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180			3924	4274	4668	5085	5513	6013	6592	7246	8996	11,267	1.097	0.921
210			3761	3979	4250	4537	4853	5195	5564	5973	6875	7906	1.071	0.936
240			4039	4187	4349	4532	4729	4940	5211	5499	6127	6879	1.057	0.964
270			4563	4663	4771	4904	5048	5202	5367	5553	5956	6460	1.035	0.981
300			5256	5327	5413	5509	5613	5724	5848	5989	6297	6644	1.022	0.993
330			6113	6169	6232	6300	6375	6468	6567	6672	6902	7201	1.013	1.007
360			7110	7164	7223	7287	7358	7434	7515	7603	7812	8046	0.998	1.017
390			8314	8357	8405	8459	8521	8588	8659	8736	8904	9116	0.994	1.033
420			9919	9961	10,004	10,052	10,104	10,161	10,226	10,299	10,458	10,637	0.970	1.041
450			11,767	11,810	11,857	11,903	11,944	11,989	12,037	12,091	12,228	12,391	0.972	1.048
480			13,996	14,031	14,070	14,113	14,161	14,212	14,255	14,301	14,405	14,526	0.963	1.052
510			16,662	16,660	16,677	16,697	16,720	16,747	16,778	16,812			0.947	1.060
540														
570														
600														
630														
660														
MIL			16,951	16,952	16,950	16,947	16,944	16,941	16,936	16,932	16,920	16,907	0.855	1.058
VMAX			512	512	512	512	512	511	511	511	510	508	0.958	1.000
MAX ENDURANCE														
KTAS			204	211	219	226	233	240	246	253	265	277	1.034	0.965
FUEL FLOW			3738	3976	4215	4455	4696	4939	5184	5431	5926	6431	1.047	0.952
MAX RANGE														
KTAS			250	260	269	278	286	293	301	307	319	325	1.034	0.965
FUEL FLOW			4189	4467	4750	5033	5311	5577	5859	6116	6651	7091	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure A4-3. (Sheet 6)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (7°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	––––	––––	––––	––––	––––	––––						
VMIN	–––	–––	–––	–––	–––	–––	–––	–––						
180	2451	2741	3057	3411	3787	4178	4641	5174					1.090	0.914
210	2256	2458	2682	2929	3195	3489	3807	4157					1.081	0.931
240	2298	2429	2580	2745	2940	3152	3380	3635					1.074	0.952
270	2463	2560	2668	2786	2922	3071	3232	3409					1.059	0.971
300	2714	2787	2869	2962	3065	3176	3295	3428					1.045	0.980
330	3006	3068	3136	3210	3291	3379	3477	3582					1.034	0.990
360	3358	3406	3460	3522	3590	3663	3741	3825					1.027	0.994
390	3740	3780	3824	3873	3926	3988	4054	4126					1.022	1.005
420	4212	4247	4285	4323	4366	4412	4463	4522					1.009	1.010
450	4713	4743	4775	4812	4850	4887	4928	4971					1.006	1.017
480	5308	5328	5352	5379	5409	5442	5479	5516					0.996	1.027
510	5988	6003	6019	6037	6057	6082	6109	6139					0.986	1.038
540	6824	6835	6850	6865	6884	6903	6925	6950					0.968	1.053
570	8006	8014	8024	8037	8051	8067	8087	8110					0.934	1.123
600	10,430	10,438	10,449	10,461	10,475	10,491	10,509	10,531					0.853	1.266
630	15,178	15,198	15,219	15,243	15,270	15,300	15,332	15,366					0.802	1.304
660														
MIL	16,339	16,338	16,337	16,336	16,335	16,333	16,332	16,330					0.840	1.059
VMAX	635	635	634	634	634	634	634	634					1.011	0.974
	MAX ENDURANCE													
KTAS	216	227	237	247	256	261	269	278					1.035	0.964
FUEL FLOW	2254	2417	2580	2742	2902	3064	3232	3398					1.048	0.951
	MAX RANGE													
KTAS	299	315	326	330	345	359	374	387					1.035	0.964
FUEL FLOW	2705	2924	3096	3208	3431	3658	3878	4096					1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––			
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––			
180	2519	2808	3125	3482	3861	4257	4724	5267	5939	6684	7553		1.101	0.917
210	2354	2554	2773	3020	3288	3583	3903	4257	4646	5054	5499		1.085	0.927
240	2433	2562	2712	2875	3066	3276	3501	3758	4030	4322	4650		1.074	0.945
270	2641	2737	2843	2959	3093	3241	3400	3576	3776	3988	4211		1.059	0.966
300	2941	3013	3093	3184	3286	3395	3512	3644	3791	3945	4109		1.043	0.980
330	3292	3351	3417	3489	3568	3654	3751	3854	3964	4081	4206		1.034	0.990
360	3704	3751	3803	3864	3930	4001	4078	4160	4248	4345	4447		1.024	0.995
390	4152	4191	4234	4281	4333	4393	4458	4528	4603	4682	4766		1.019	1.006
420	4703	4736	4773	4811	4852	4897	4947	5005	5068	5135	5207		1.006	1.014
450	5291	5319	5351	5386	5424	5460	5499	5542	5588	5643	5706		1.007	1.023
480	6005	6024	6051	6080	6113	6150	6191	6233	6277	6325	6376		0.997	1.028
510	6894	6906	6921	6940	6961	6986	7013	7044	7079	7120	7163		0.977	1.036
540	7927	7933	7943	7954	7971	7991	8014	8039	8067	8097	8132		0.967	1.062
570	9441	9448	9456	9466	9479	9494	9514	9535	9558	9584	9611		0.927	1.157
600	12,873	12,869	12,868	12,868	12,871	12,875	12,880	12,895	12,917	12,940	12,966		0.831	1.211
630														
660														
MIL	16,160	16,160	16,159	16,159	16,159	16,158	16,157	16,157	16,156	16,154	16,153		0.845	1.075
VMAX	615	615	615	615	615	615	615	615	615	615	614		1.011	0.975
	MAX ENDURANCE													
KTAS	209	220	230	239	248	256	264	273	281	289	296		1.035	0.964
FUEL FLOW	2353	2528	2703	2875	3047	3219	3393	3572	3750	3928	4105		1.048	0.951
	MAX RANGE													
KTAS	281	294	308	320	326	336	348	361	374	386	391		1.035	0.964
FUEL FLOW	2742	2956	3170	3375	3525	3716	3942	4175	4403	4628	4783		1.048	0.951

Figure A4-3. (Sheet 7)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

TOTAL FUEL FLOW LB/HR — DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	11,395	0.994	0.961
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	184	1.048	0.963
180	2587	2876	3194	3553	3936	4336	4807	5360	6035	6790	8688		1.101	0.918
210	2451	2649	2864	3111	3380	3677	3999	4357	4750	5165	6085	7308	1.087	0.925
240	2567	2695	2844	3004	3193	3400	3623	3881	4155	4453	5127	5929	1.077	0.946
270	2819	2914	3018	3132	3264	3411	3569	3743	3941	4150	4632	5203	1.057	0.967
300	3169	3239	3317	3406	3506	3614	3730	3860	4005	4159	4497	4909	1.042	0.981
330	3578	3635	3699	3769	3845	3929	4024	4126	4235	4351	4615	4930	1.030	0.991
360	4049	4095	4147	4205	4269	4339	4414	4494	4581	4677	4885	5124	1.021	0.997
390	4564	4601	4643	4689	4739	4799	4863	4931	5005	5083	5261	5463	1.016	1.009
420	5194	5226	5262	5298	5340	5385	5435	5494	5561	5634	5793	5973	1.008	1.018
450	5897	5928	5963	6002	6044	6085	6129	6176	6227	6287	6428	6585	1.001	1.024
480	6790	6807	6832	6860	6892	6927	6967	7007	7050	7096	7200	7348	0.988	1.034
510	7861	7869	7881	7900	7922	7948	7977	8009	8046	8090	8186	8296	0.971	1.043
540	9134	9134	9137	9143	9157	9176	9198	9222	9249	9279	9354	9447	0.965	1.070
570	11,020	11,024	11,029	11,037	11,047	11,060	11,075	11,093	11,113	11,135	11,186	11,250	0.918	1.179
600	15,638	15,620	15,605	15,591	15,580	15,571	15,564	15,571	15,592	15,615			0.808	1.240
630														
660														
MIL	16,032	16,033	16,033	16,034	16,034	16,035	16,035	16,035	16,034	16,033	16,031	16,029	0.849	1.093
VMAX	601	601	601	601	601	601	601	601	601	601	600	600	1.013	0.976
MAX ENDURANCE														
KTAS	209	219	228	237	247	255	263	271	279	286	301	314	1.035	0.964
FUEL FLOW	2450	2636	2819	3001	3184	3367	3553	3743	3932	4120	4497	4886	1.048	0.951
MAX RANGE														
KTAS	271	284	296	308	319	326	337	348	359	369	385	391	1.035	0.964
FUEL FLOW	2825	3056	3270	3488	3708	3885	4110	4341	4566	4791	5191	5481	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	11,404	0.994	0.961
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	185	1.048	0.962
180	2653	2943	3262	3624	4011	4416	4889	5452	6131	6896	8835		1.099	0.920
210	2549	2743	2955	3202	3473	3771	4094	4457	4853	5278	6203	7446	1.085	0.927
240	2702	2828	2974	3133	3319	3524	3744	4004	4280	4583	5261	6073	1.073	0.950
270	2997	3090	3192	3304	3435	3581	3738	3910	4105	4313	4798	5373	1.053	0.970
300	3397	3465	3541	3629	3727	3833	3948	4076	4220	4373	4715	5125	1.037	0.984
330	3864	3919	3980	4048	4123	4204	4298	4399	4506	4620	4890	5207	1.026	0.994
360	4395	4440	4490	4547	4609	4677	4750	4829	4916	5014	5229	5469	1.017	1.001
390	4976	5012	5052	5097	5149	5210	5276	5346	5422	5502	5682	5886	1.014	1.013
420	5710	5744	5783	5822	5865	5912	5964	6026	6093	6165	6323	6503	1.001	1.021
450	6560	6590	6624	6662	6703	6742	6786	6832	6883	6942	7091	7261	0.993	1.031
480	7615	7631	7657	7687	7721	7758	7801	7844	7890	7940	8051	8198	0.976	1.038
510	8893	8897	8904	8921	8941	8965	8992	9023	9060	9104	9204	9322	0.970	1.051
540	10,443	10,436	10,433	10,432	10,444	10,462	10,482	10,505	10,532	10,561	10,635	10,725	0.957	1.074
570	12,641	12,641	12,643	12,648	12,655	12,666	12,679	12,695	12,713	12,733	12,782	12,843	0.917	1.202
600														
630														
660														
MIL	15,942	15,942	15,942	15,943	15,943	15,943	15,943	15,943	15,943	15,942	15,942	15,941	0.850	1.108
VMAX	590	590	590	590	590	590	590	590	590	590	590	590	1.009	0.976
MAX ENDURANCE														
KTAS	206	216	225	234	242	250	259	264	271	279	293	306	1.035	0.964
FUEL FLOW	2545	2740	2932	3125	3318	3513	3708	3906	4105	4304	4709	5122	1.048	0.951
MAX RANGE														
KTAS	263	276	287	299	309	320	326	335	345	353	370	385	1.035	0.964
FUEL FLOW	2918	3153	3382	3612	3834	4066	4247	4463	4698	4908	5373	5813	1.048	0.951

Figure A4-3. (Sheet 8)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	11,485	0.994	0.961
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	192	1.050	0.962
180	3010	3331	3695	4087	4494	4974	5545	6228	7002	7901	10,261		1.107	0.910
210	2836	3045	3292	3565	3865	4192	4557	4957	5389	5844	6937	8333	1.089	0.926
240	2959	3104	3262	3445	3648	3866	4127	4409	4713	5046	5790	6672	1.075	0.944
270	3265	3366	3477	3606	3751	3907	4077	4270	4477	4701	5247	5869	1.057	0.970
300	3691	3765	3851	3947	4052	4165	4292	4435	4588	4755	5134	5561	1.039	0.984
330	4203	4262	4328	4400	4479	4571	4671	4781	4899	5025	5324	5656	1.026	0.994
360	4785	4833	4890	4952	5021	5097	5177	5265	5363	5467	5695	5949	1.016	1.003
390	5439	5480	5526	5577	5638	5704	5775	5851	5932	6018	6207	6438	1.010	1.016
420	6287	6325	6362	6404	6451	6504	6568	6637	6711	6792	6973	7175	0.996	1.025
450	7283	7320	7360	7404	7446	7492	7542	7596	7659	7731	7890	8068	0.981	1.034
480	8500	8525	8553	8585	8621	8662	8703	8748	8797	8852	8988	9161	0.976	1.045
510	10,018	10,020	10,037	10,058	10,082	10,110	10,141	10,178	10,222	10,269	10,376	10,500	0.962	1.051
540	11,753	11,744	11,736	11,744	11,759	11,777	11,798	11,823	11,850	11,881	11,964	12,061	0.960	1.079
570	14,438	14,437	14,438	14,442	14,448	14,458	14,469	14,483	14,500	14,519	14,565	14,630	0.906	1.100
600														
630														
660														
MIL	15,875	15,875	15,875	15,875	15,875	15,875	15,875	15,875	15,875	15,875	15,874	15,873	0.846	1.119
VMAX	580	580	580	580	580	580	580	580	580	580	580	580	0.993	0.979
	MAX ENDURANCE													
KTAS	209	218	227	235	243	251	258	264	272	278	291	303	1.035	0.964
FUEL FLOW	2836	3038	3240	3443	3647	3852	4058	4266	4477	4692	5124	5560	1.048	0.951
	MAX RANGE													
KTAS	266	277	288	298	308	318	326	330	339	349	364	374	1.035	0.964
FUEL FLOW	3215	3452	3691	3926	4162	4397	4614	4779	5034	5287	5760	6153	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	11,496	0.994	0.961
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	193	1.050	0.962
180	3077	3399	3766	4163	4574	5061	5637	6330	7108	8020	10,414		1.106	0.911
210	2929	3135	3383	3658	3959	4290	4656	5060	5501	5959	7068	8496	1.087	0.928
240	3090	3234	3390	3572	3772	3987	4250	4537	4843	5178	5931	6837	1.073	0.947
270	3441	3540	3649	3777	3921	4076	4244	4436	4646	4867	5416	6046	1.053	0.972
300	3917	3988	4073	4168	4272	4383	4509	4654	4811	4976	5353	5781	1.036	0.987
330	4487	4544	4607	4677	4756	4852	4956	5066	5183	5307	5605	5939	1.022	0.998
360	5141	5191	5247	5309	5377	5451	5531	5618	5716	5820	6047	6313	1.012	1.006
390	5879	5919	5964	6014	6074	6138	6208	6288	6376	6468	6673	6902	1.007	1.022
420	6856	6895	6936	6980	7030	7084	7149	7220	7297	7378	7558	7758	0.986	1.030
450	8016	8051	8090	8133	8173	8218	8267	8320	8382	8454	8614	8801	0.979	1.041
480	9430	9455	9485	9519	9557	9601	9646	9694	9746	9802	9938	10,109	0.967	1.045
510	11,160	11,157	11,171	11,190	11,212	11,237	11,267	11,301	11,343	11,388	11,490	11,610	0.962	1.053
540	13,178	13,159	13,143	13,147	13,162	13,180	13,201	13,226	13,253	13,286	13,369	13,466	0.955	1.082
570	16,247	16,242	16,240	16,239	16,242	16,247							0.948	1.111
600														
630														
660														
MIL	15,817	15,817	15,817	15,817	15,817	15,816	15,816	15,815	15,814	15,813	15,810	15,806	0.843	1.125
VMAX	571	571	571	571	571	571	570	570	570	570	570	569	0.972	0.983
	MAX ENDURANCE													
KTAS	204	212	221	229	237	244	251	259	265	271	284	296	1.035	0.964
FUEL FLOW	2925	3135	3345	3557	3770	3985	4200	4418	4642	4867	5318	5779	1.048	0.951
	MAX RANGE													
KTAS	261	269	279	289	299	308	313	322	330	338	353	362	1.035	0.964
FUEL FLOW	3317	3521	3768	4010	4255	4499	4686	4931	5177	5424	5924	6346	1.048	0.951

Figure A4-3. (Sheet 9)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 300	MIL		––––	––––	––––	––––	––––	––––	––––	––––	––––	11,357	11,507	0.994	0.961
	VMIN		–––	–––	–––	–––	–––	–––	–––	–––	–––	180	194	1.050	0.963
	180		3467	3837	4239	4653	5148	5729	6431	7214	8140			1.104	0.913
	210		3226	3474	3750	4053	4388	4756	5167	5613	6075	7199	8663	1.087	0.926
	240		3363	3519	3698	3896	4109	4377	4666	4973	5311	6071	7002	1.071	0.944
	270		3714	3821	3948	4091	4245	4412	4607	4814	5033	5587	6222	1.051	0.972
	300		4213	4295	4389	4491	4603	4732	4879	5034	5198	5572	6005	1.034	0.987
	330		4832	4896	4968	5046	5140	5242	5351	5467	5591	5890	6230	1.018	0.999
	360		5555	5610	5671	5738	5810	5889	5974	6072	6182	6419	6685	1.010	1.009
	390		6372	6420	6473	6537	6606	6681	6761	6847	6938	7142	7372	1.000	1.025
	420		7495	7534	7578	7626	7679	7743	7813	7888	7968	8153	8364	0.983	1.034
	450		8801	8844	8890	8934	8982	9035	9092	9158	9235	9405	9597	0.975	1.041
	480		10,423	10,451	10,483	10,520	10,562	10,605	10,651	10,702	10,756	10,889	11,057	0.964	1.047
	510		12,319	12,332	12,350	12,371	12,396	12,425	12,459	12,502	12,548	12,653	12,780	0.961	1.056
	540		14,618	14,595	14,594	14,606	14,622	14,640	14,663	14,688	14,718	14,796	14,888	0.932	1.093
	570														
	600														
	630														
	660														
	MIL		15,690	15,692	15,694	15,693	15,693	15,691	15,690	15,688	15,686	15,681	15,674	0.845	1.134
	VMAX		553	553	554	554	553	553	553	553	553	552	551	0.965	0.999
	MAX ENDURANCE														
	KTAS		208	217	225	233	240	247	255	262	268	282	294	1.035	0.964
	FUEL FLOW		3225	3444	3664	3886	4109	4334	4564	4797	5031	5503	5992	1.048	0.951
	MAX RANGE														
	KTAS		261	271	281	291	296	306	314	322	330	346	361	1.035	0.964
	FUEL FLOW		3591	3840	4093	4346	4548	4816	5078	5322	5588	6135	6700	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 350	MIL			––––	––––	––––	––––	––––	––––	––––	––––	11,366	11,518	0.994	0.961
	VMIN			–––	–––	–––	–––	–––	–––	–––	–––	181	196	1.051	0.962
	180			3908	4315	4732	5235	5821	6531	7321	8275			1.109	0.907
	210			3564	3842	4148	4486	4856	5276	5724	6191	7330	8832	1.086	0.923
	240			3648	3825	4020	4230	4503	4794	5103	5448	6213	7167	1.070	0.945
	270			3994	4119	4261	4414	4585	4778	4982	5199	5761	6401	1.049	0.972
	300			4517	4612	4717	4830	4958	5103	5257	5421	5797	6229	1.031	0.987
	330			5191	5260	5335	5429	5530	5639	5754	5879	6184	6521	1.016	1.001
	360			5975	6036	6103	6178	6260	6349	6451	6559	6794	7059	1.008	1.013
	390			6900	6952	7015	7084	7158	7238	7323	7414	7616	7852	0.995	1.029
	420			8142	8187	8237	8293	8360	8433	8514	8601	8795	9011	0.981	1.038
	450			9658	9703	9746	9792	9844	9900	9964	10,040	10,206	10,395	0.968	1.043
	480			11,417	11,448	11,483	11,523	11,564	11,609	11,657	11,710	11,846	12,023	0.966	1.052
	510			13,565	13,580	13,600	13,623	13,650	13,683	13,724	13,769	13,871	13,992	0.956	1.058
	540														
	570														
	600														
	630														
	660														
	MIL			15,572	15,571	15,571	15,569	15,568	15,566	15,564	15,561	15,554	15,545	0.848	1.142
	VMAX			536	536	536	536	536	536	535	535	534	533	0.961	1.008
	MAX ENDURANCE														
	KTAS			216	224	232	240	247	254	261	268	281	294	1.035	0.964
	FUEL FLOW			3540	3769	3999	4230	4468	4708	4950	5194	5691	6202	1.048	0.951
	MAX RANGE														
	KTAS			266	276	286	295	303	312	321	327	341	352	1.035	0.964
	FUEL FLOW			3933	4205	4479	4739	5003	5289	5578	5830	6375	6898	1.048	0.951

Figure A4-3. (Sheet 10)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL			––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	11,374	11,529	0.994	0.961
VMIN			–––	–––	–––	–––	–––	–––	–––	–––	182	197	1.050	0.962
180			3979	4390	4811	5321	5914	6632	7429	8411			1.108	0.908
210			3655	3934	4244	4584	4956	5384	5836	6307	7461	9001	1.085	0.924
240			3776	3951	4144	4355	4630	4922	5233	5585	6356	7331	1.068	0.947
270			4167	4290	4432	4588	4758	4949	5151	5366	5934	6581	1.045	0.975
300			4748	4843	4946	5057	5184	5328	5482	5645	6025	6453	1.027	0.990
330			5486	5553	5628	5720	5820	5931	6049	6175	6478	6814	1.014	1.005
360			6360	6422	6489	6563	6643	6730	6830	6938	7174	7441	1.004	1.018
390			7387	7438	7500	7567	7640	7718	7806	7906	8128	8379	0.995	1.033
420			8799	8845	8895	8951	9019	9094	9176	9263	9456	9671	0.975	1.039
450			10,474	10,518	10,558	10,604	10,654	10,708	10,771	10,845	11,009	11,195	0.968	1.047
480			12,431	12,462	12,498	12,540	12,584	12,630	12,682	12,738	12,875	13,053	0.962	1.054
510			14,804	14,817	14,834	14,855	14,880	14,910	14,949	14,991	15,088	15,204	0.943	1.071
540														
570														
600														
630														
660														
MIL			15,455	15,455	15,454	15,453	15,451	15,450	15,447	15,444	15,437	15,428	0.852	1.132
VMAX			520	520	520	519	519	519	518	518	517	515	0.960	1.010
MAX ENDURANCE														
KTAS			216	224	232	240	247	254	261	268	281	293	1.035	0.964
FUEL FLOW			3635	3873	4111	4354	4602	4851	5103	5357	5879	6412	1.048	0.951
MAX RANGE														
KTAS			266	276	284	293	301	308	315	319	333	344	1.035	0.964
FUEL FLOW			4094	4375	4635	4923	5193	5457	5726	5966	6533	7077	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure A4-3. (Sheet 11)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 0	MIL	––––	––––	––––	––––	––––	––––	––––	––––						
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––						
	180	2489	2813	3177	3555	3999	4525	5199	5955					1.111	0.914
	210	2219	2449	2705	2985	3297	3639	4028	4439					1.089	0.922
	240	2174	2328	2506	2714	2938	3191	3463	3759					1.080	0.939
	270	2279	2390	2514	2661	2819	2994	3198	3414					1.065	0.962
	300	2470	2555	2653	2761	2878	3008	3155	3312					1.051	0.976
	330	2714	2784	2861	2945	3040	3143	3254	3372					1.040	0.987
	360	3005	3062	3126	3197	3274	3356	3446	3544					1.031	0.991
	390	3337	3382	3432	3490	3555	3626	3702	3783					1.024	1.001
	420	3742	3779	3819	3864	3912	3971	4036	4105					1.014	1.007
	450	4174	4207	4243	4280	4319	4362	4409	4465					1.009	1.017
	480	4705	4728	4755	4785	4819	4857	4898	4942					0.998	1.024
	510	5313	5329	5347	5368	5392	5419	5451	5489					0.991	1.035
	540	6040	6054	6071	6090	6111	6135	6162	6191					0.976	1.069
	570	7213	7223	7234	7247	7264	7284	7306	7329					0.928	1.183
	600	9889	9904	9920	9939	9961	9986	10,014	10,045					0.809	1.267
	630	14,250	14,278	14,308	14,342	14,379	14,419	14,463	14,506					0.803	1.274
	660														
	MIL	15,092	15,090	15,088	15,086	15,084	15,081	15,078	15,076					0.833	1.147
	VMAX	634	634	634	633	633	633	633	632					1.010	0.984
	MAX ENDURANCE														
	KTAS	230	242	253	258	269	279	289	299					1.036	0.963
	FUEL FLOW	2168	2328	2489	2652	2819	2985	3149	3312					1.049	0.949
	MAX RANGE														
	KTAS	321	324	340	357	372	386	386	386					1.036	0.963
	FUEL FLOW	2633	2730	2946	3166	3382	3580	3658	3741					1.049	0.949

*TEMPERATURE DEVIATION FROM STANDARD DAY. –––VMIN LESS THAN 180 KTAS.

	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 50	MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	9932		1.023	0.953
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	180		1.042	0.963
	180	2548	2874	3241	3624	4072	4607	5286	6052	6971	8083			1.122	0.901
	210	2302	2529	2786	3068	3381	3728	4120	4536	4990	5509	6110		1.097	0.916
	240	2290	2445	2620	2825	3047	3301	3574	3874	4206	4560	4969		1.082	0.930
	270	2434	2544	2667	2813	2970	3143	3344	3558	3788	4055	4338		1.070	0.956
	300	2669	2752	2849	2955	3070	3199	3345	3501	3666	3852	4056		1.053	0.973
	330	2963	3030	3105	3187	3281	3382	3491	3608	3736	3880	4033		1.039	0.985
	360	3308	3363	3426	3495	3570	3651	3740	3836	3939	4048	4164		1.029	0.992
	390	3700	3744	3792	3849	3913	3983	4057	4137	4222	4313	4412		1.021	1.003
	420	4178	4214	4253	4297	4344	4401	4465	4533	4607	4689	4778		1.011	1.008
	450	4692	4723	4758	4794	4833	4875	4924	4984	5051	5123	5199		1.008	1.022
	480	5327	5350	5377	5407	5442	5481	5522	5567	5617	5675	5743		0.998	1.030
	510	6091	6106	6124	6146	6171	6199	6233	6274	6319	6367	6418		0.984	1.040
	540	7000	7010	7024	7042	7063	7086	7113	7143	7178	7217	7260		0.969	1.083
	570	8546	8554	8564	8576	8591	8608	8628	8649	8673	8699	8728		0.913	1.225
	600	12,332	12,336	12,341	12,349	12,359	12,376	12,403	12,432	12,464	12,499	12,536		0.785	1.321
	630														
	660														
	MIL	14,871	14,870	14,870	14,869	14,868	14,867	14,865	14,863	14,861	14,859	14,857		0.841	1.132
	VMAX	614	614	614	614	614	614	613	613	613	613	613		1.011	0.978
	MAX ENDURANCE														
	KTAS	223	234	244	254	263	272	281	290	299	308	316		1.036	0.963
	FUEL FLOW	2269	2441	2614	2786	2963	3140	3316	3492	3666	3839	4014		1.049	0.949
	MAX RANGE														
	KTAS	300	315	322	333	347	361	374	386	386	386	392		1.036	0.963
	FUEL FLOW	2667	2882	3022	3212	3437	3663	3883	4084	4172	4269	4437		1.049	0.949

Figure A4-3. (Sheet 12)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−1°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW−1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	----	----	----	----	----	----	----	----	----	----	10,010	10,137	1.021	0.954
VMIN	---	---	---	---	---	---	---	---	---	---	188	204	1.043	0.963
180	2607	2934	3304	3693	4145	4688	5373	6149	7079	8214			1.121	0.903
210	2385	2608	2866	3150	3465	3816	4213	4636	5095	5617	6939	8797	1.094	0.912
240	2408	2561	2734	2936	3155	3411	3686	3989	4325	4682	5542	6527	1.082	0.928
270	2590	2698	2820	2964	3121	3292	3491	3703	3933	4202	4794	5511	1.066	0.952
300	2868	2949	3044	3149	3263	3390	3535	3689	3854	4042	4461	4966	1.050	0.971
330	3211	3277	3350	3430	3521	3622	3729	3845	3971	4118	4440	4811	1.036	0.986
360	3611	3665	3726	3793	3867	3946	4033	4128	4231	4344	4590	4896	1.026	0.994
390	4063	4105	4153	4209	4271	4339	4415	4498	4587	4682	4892	5129	1.018	1.007
420	4616	4652	4691	4736	4786	4846	4912	4984	5060	5144	5329	5538	1.009	1.012
450	5235	5268	5305	5343	5383	5427	5476	5538	5608	5682	5847	6039	1.004	1.025
480	5996	6019	6046	6076	6112	6151	6194	6242	6296	6357	6509	6679	0.992	1.033
510	6931	6944	6962	6984	7009	7038	7073	7116	7164	7216	7334	7491	0.981	1.048
540	8071	8075	8084	8101	8121	8143	8169	8198	8231	8269	8354	8452	0.962	1.092
570	10,014	10,020	10,028	10,039	10,050	10,065	10,082	10,101	10,122	10,146	10,207	10,281	0.902	1.258
600														
630														
660														
MIL	14,762	14,762	14,762	14,762	14,762	14,762	14,761	14,760	14,760	14,759	14,757	14,754	0.844	1.118
VMAX	599	599	599	599	599	599	599	599	598	598	598	598	1.013	0.977
MAX ENDURANCE														
KTAS	221	232	243	253	262	272	279	288	297	305	321	332	1.036	0.963
FUEL FLOW	2367	2549	2732	2916	3104	3292	3479	3665	3850	4038	4417	4811	1.049	0.949
MAX RANGE														
KTAS	288	302	314	323	335	348	359	370	376	386	386	399	1.036	0.963
FUEL FLOW	2750	2965	3178	3354	3578	3802	4022	4240	4412	4623	4838	5245	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **---VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW−1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	----	----	----	----	----	----	----	----	----	----	10,018	10,146	1.020	0.954
VMIN	---	---	---	---	---	---	---	---	---	---	189	205	1.043	0.963
180	2666	2995	3368	3763	4218	4770	5459	6248	7189	8346			1.119	0.904
210	2467	2687	2947	3232	3549	3905	4306	4736	5201	5725	7066	8964	1.092	0.914
240	2525	2676	2847	3047	3264	3520	3798	4105	4444	4807	5675	6676	1.079	0.931
270	2747	2853	2973	3116	3271	3442	3638	3848	4078	4351	4954	5677	1.061	0.955
300	3067	3146	3240	3343	3455	3582	3725	3878	4045	4233	4653	5166	1.045	0.974
330	3460	3523	3594	3672	3762	3861	3968	4084	4214	4361	4685	5061	1.031	0.990
360	3914	3967	4026	4092	4164	4243	4332	4431	4537	4649	4897	5205	1.023	0.999
390	4429	4472	4521	4579	4644	4715	4791	4874	4963	5059	5272	5512	1.013	1.011
420	5080	5117	5156	5201	5249	5310	5378	5451	5529	5615	5805	6021	1.003	1.016
450	5813	5846	5884	5923	5966	6013	6065	6128	6199	6275	6444	6637	0.995	1.030
480	6723	6746	6774	6806	6843	6884	6929	6979	7034	7096	7253	7428	0.981	1.043
510	7853	7862	7879	7900	7924	7953	7987	8030	8077	8128	8244	8411	0.973	1.051
540	9213	9212	9215	9232	9251	9274	9300	9329	9363	9403	9492	9595	0.957	1.098
570	11,532	11,535	11,540	11,548	11,555	11,564	11,576	11,590	11,606	11,625	11,676	11,740	0.899	1.300
600														
630														
660														
MIL	14,692	14,693	14,693	14,694	14,694	14,694	14,693	14,693	14,693	14,692	14,691	14,689	0.845	1.111
VMAX	588	588	588	588	588	588	588	588	588	588	587	587	1.012	0.976
MAX ENDURANCE														
KTAS	218	228	238	247	256	265	274	282	290	298	312	323	1.036	0.963
FUEL FLOW	2461	2653	2847	3043	3241	3439	3637	3833	4032	4232	4637	5056	1.049	0.949
MAX RANGE														
KTAS	280	294	307	320	323	334	343	352	362	370	386	386	1.036	0.963
FUEL FLOW	2845	3084	3318	3554	3675	3908	4120	4330	4558	4770	5204	5451	1.049	0.949

Figure A4-3. (Sheet 13)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	9955	10,092	10,215	1.020	0.954
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	183	198	213	1.043	0.963
	180	3055	3431	3832	4291	4852	5545	6347	7305	8484				1.129	0.899
	210	2766	3028	3315	3633	3994	4398	4835	5306	5833	6476	8114		1.092	0.916
	240	2792	2961	3159	3373	3630	3912	4222	4562	4932	5357	6293	7399	1.082	0.930
	270	3008	3126	3268	3422	3591	3785	3995	4223	4500	4794	5468	6238	1.061	0.953
	300	3343	3436	3537	3648	3773	3916	4072	4239	4425	4630	5082	5669	1.044	0.974
	330	3770	3839	3914	4003	4104	4213	4330	4459	4607	4765	5115	5529	1.031	0.992
	360	4271	4332	4399	4473	4553	4641	4740	4847	4960	5081	5363	5693	1.021	1.000
	390	4856	4905	4963	5028	5099	5176	5258	5347	5445	5551	5780	6034	1.010	1.014
	420	5598	5638	5683	5733	5795	5864	5939	6019	6106	6198	6403	6634	0.999	1.022
	450	6458	6496	6535	6577	6623	6673	6734	6806	6885	6968	7154	7374	0.986	1.036
	480	7516	7544	7575	7612	7656	7704	7757	7814	7878	7959	8134	8332	0.974	1.045
	510	8829	8846	8866	8891	8920	8954	8999	9048	9102	9160	9306	9489	0.967	1.053
	540	10,398	10,396	10,410	10,427	10,447	10,471	10,498	10,530	10,567	10,608	10,699	10,810	0.955	1.103
	570	13,230	13,233	13,238	13,241	13,246	13,254	13,265	13,278	13,294	13,314	13,371	13,439	0.887	1.133
	600														
	630														
	660														
	MIL	14,640	14,640	14,640	14,640	14,640	14,640	14,640	14,640	14,640	14,640	14,639	14,638	0.845	1.106
	VMAX	579	579	579	579	579	579	579	579	579	579	579	579	1.004	0.974
	MAX ENDURANCE														
	KTAS	221	231	240	248	256	267	275	282	290	297	311	322	1.036	0.963
	FUEL FLOW	2749	2953	3159	3367	3577	3784	3993	4203	4414	4629	5068	5520	1.049	0.949
	MAX RANGE														
	KTAS	284	297	309	321	322	331	340	348	357	365	381	386	1.036	0.963
	FUEL FLOW	3154	3396	3637	3879	3994	4222	4459	4678	4919	5150	5635	5961	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 250	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	9962	10,101	10,224	1.019	0.954
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	183	199	215	1.043	0.963
	180	3116	3495	3902	4363	4935	5631	6446	7428	8622				1.127	0.900
	210	2846	3109	3397	3720	4083	4491	4935	5411	5943	6601	8266		1.090	0.918
	240	2907	3075	3270	3482	3740	4026	4338	4683	5058	5487	6435	7558	1.079	0.932
	270	3162	3279	3420	3573	3740	3934	4143	4370	4650	4951	5631	6411	1.057	0.957
	300	3540	3631	3731	3841	3966	4111	4266	4433	4621	4824	5281	5874	1.040	0.978
	330	4017	4086	4162	4253	4353	4461	4579	4709	4857	5018	5373	5786	1.027	0.996
	360	4589	4648	4714	4788	4868	4956	5055	5162	5278	5401	5683	6016	1.016	1.005
	390	5249	5297	5353	5419	5492	5570	5654	5745	5842	5947	6180	6442	1.006	1.019
	420	6099	6139	6184	6234	6296	6365	6440	6520	6608	6703	6912	7161	0.992	1.028
	450	7086	7125	7165	7207	7256	7312	7379	7457	7540	7629	7828	8051	0.980	1.041
	480	8341	8369	8401	8438	8481	8527	8578	8634	8699	8781	8962	9166	0.969	1.050
	510	9854	9868	9886	9909	9935	9968	10,010	10,057	10,108	10,164	10,307	10,492	0.961	1.054
	540	11,627	11,618	11,631	11,646	11,666	11,690	11,718	11,751	11,790	11,833	11,931	12,051	0.954	1.114
	570														
	600														
	630														
	660														
	MIL	14,541	14,541	14,541	14,541	14,541	14,540	14,540	14,540	14,539	14,538	14,535	14,531	0.845	1.106
	VMAX	569	569	569	569	569	569	569	569	569	569	569	568	0.988	0.979
	MAX ENDURANCE														
	KTAS	215	224	233	241	249	260	268	275	283	290	303	315	1.036	0.963
	FUEL FLOW	2838	3050	3265	3482	3701	3923	4142	4363	4587	4811	5280	5756	1.049	0.949
	MAX RANGE														
	KTAS	275	288	299	308	317	322	329	337	344	353	370	384	1.036	0.963
	FUEL FLOW	3219	3474	3721	3933	4172	4343	4559	4806	5024	5286	5818	6326	1.049	0.949

Figure A4-3. (Sheet 14)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL		––––	––––	––––	––––	––––	––––	––––	––––	9970	10,109	10,235	1.019	0.954
VMIN		–––	–––	–––	–––	–––	–––	–––	–––	184	200	216	1.043	0.963
180		3560	3972	4436	5019	5717	6544	7551	8759				1.129	0.896
210		3190	3479	3806	4172	4586	5036	5516	6057	6725	8417		1.089	0.918
240		3188	3381	3590	3851	4140	4455	4806	5184	5617	6578	7735	1.079	0.932
270		3432	3572	3724	3891	4084	4291	4518	4801	5109	5795	6585	1.060	0.959
300		3827	3927	4038	4163	4307	4463	4631	4817	5026	5481	6079	1.039	0.980
330		4340	4415	4504	4605	4714	4831	4962	5115	5278	5631	6046	1.025	0.999
360		4970	5035	5108	5188	5277	5379	5488	5603	5725	6009	6346	1.013	1.007
390		5701	5759	5824	5895	5972	6056	6148	6249	6356	6592	6869	1.004	1.024
420		6654	6699	6750	6811	6881	6959	7044	7140	7242	7465	7718	0.987	1.033
450		7813	7855	7900	7949	8004	8069	8145	8227	8314	8510	8737	0.975	1.043
480		9223	9255	9292	9335	9382	9433	9489	9553	9634	9813	10,016	0.963	1.049
510		10,906	10,923	10,945	10,971	11,003	11,046	11,094	11,146	11,204	11,353	11,549	0.961	1.058
540		12,953	12,964	12,978	12,995	13,016	13,042	13,072	13,109	13,149	13,242	13,356	0.945	1.121
570														
600														
630														
660														
MIL		14,413	14,413	14,413	14,412	14,410	14,409	14,407	14,404	14,401	14,393	14,383	0.846	1.105
VMAX		557	557	557	557	557	557	556	556	556	555	554	0.975	0.985
	MAX ENDURANCE													
KTAS		221	230	239	247	255	263	271	278	286	299	312	1.036	0.963
FUEL FLOW		3141	3364	3589	3819	4052	4283	4515	4748	4990	5481	5982	1.049	0.949
	MAX RANGE													
KTAS		279	291	299	309	316	323	332	341	350	367	378	1.036	0.963
FUEL FLOW		3542	3805	4022	4273	4498	4725	4997	5276	5556	6125	6625	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL			––––	––––	––––	––––	––––	––––	––––	9977	10,117	10,246	1.019	0.954
VMIN			–––	–––	–––	–––	–––	–––	–––	185	201	217	1.043	0.963
180			4042	4511	5101	5806	6641	7672	8895				1.136	0.889
210			3562	3893	4261	4682	5138	5621	6171	6849	8573		1.087	0.918
240			3492	3699	3963	4255	4572	4930	5311	5747	6726	7915	1.078	0.930
270			3724	3876	4043	4234	4441	4665	4957	5267	5958	6758	1.064	0.961
300			4127	4236	4360	4506	4662	4829	5021	5230	5683	6293	1.038	0.983
330			4672	4761	4861	4970	5091	5224	5377	5539	5893	6312	1.024	1.000
360			5366	5439	5519	5607	5707	5815	5931	6056	6342	6693	1.011	1.009
390			6171	6237	6309	6388	6474	6565	6664	6781	7036	7319	1.000	1.029
420			7250	7304	7369	7443	7524	7610	7704	7804	8028	8284	0.983	1.036
450			8551	8596	8647	8702	8769	8847	8930	9019	9220	9446	0.971	1.044
480			10,128	10,166	10,209	10,256	10,308	10,366	10,431	10,516	10,702	10,912	0.963	1.053
510			12,025	12,045	12,069	12,099	12,142	12,188	12,240	12,297	12,447	12,650	0.956	1.063
540			14,299	14,311	14,326	14,344							0.949	1.073
570														
600														
630														
660														
MIL			14,231	14,229	14,226	14,223	14,219	14,215	14,208	14,202	14,185	14,162	0.850	1.106
VMAX			541	541	541	541	540	540	540	539	538	536	0.968	0.996
	MAX ENDURANCE													
KTAS			230	238	247	255	263	271	278	285	299	312	1.036	0.963
FUEL FLOW			3462	3696	3937	4179	4422	4664	4913	5167	5681	6209	1.049	0.949
	MAX RANGE													
KTAS			283	294	303	313	321	328	337	345	359	368	1.036	0.963
FUEL FLOW			3879	4154	4404	4677	4940	5192	5491	5774	6323	6842	1.049	0.949

Figure A4-3. (Sheet 15)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−1°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 400	**MIL**			– – – –	– – – –	– – – –	– – – –	– – – –	– – – –	– – – –	9986	10,125	10,257	1.018	0.954
	VMIN			– – –	– – –	– – –	– – –	– – –	– – –	– – –	186	202	219	1.043	0.963
	180			4112	4586	5184	5898	6738	7793	9030				1.134	0.890
	210			3644	3980	4350	4778	5240	5726	6285	6972	8733		1.086	0.920
	240			3604	3810	4075	4370	4691	5053	5439	5877	6875	8096	1.076	0.933
	270			3877	4029	4196	4386	4592	4815	5113	5426	6124	6939	1.062	0.965
	300			4327	4436	4561	4706	4862	5035	5227	5433	5886	6508	1.034	0.986
	330			4931	5022	5125	5236	5356	5488	5639	5802	6157	6588	1.020	1.003
	360			5701	5772	5851	5939	6041	6151	6268	6393	6691	7050	1.008	1.013
	390			6595	6660	6737	6822	6914	7013	7120	7236	7489	7774	0.995	1.033
	420			7824	7876	7942	8016	8096	8183	8278	8380	8607	8867	0.978	1.039
	450			9278	9322	9371	9425	9492	9572	9659	9751	9959	10,194	0.968	1.047
	480			11,042	11,078	11,119	11,164	11,215	11,270	11,333	11,417	11,600	11,813	0.960	1.058
	510			13,153	13,171	13,192	13,220	13,260	13,304	13,353	13,407	13,554	13,757	0.943	1.067
	540														
	570														
	600														
	630														
	660														
	MIL			14,013	14,011	14,007	14,003	13,998	13,990	13,982	13,973	13,952	13,912	0.856	1.100
	VMAX			525	525	524	524	524	523	522	522	520	517	0.964	0.999
	MAX ENDURANCE														
	KTAS			230	238	247	255	263	270	278	285	299	312	1.036	0.963
	FUEL FLOW			3559	3804	4054	4308	4561	4815	5078	5342	5882	6444	1.049	0.949
	MAX RANGE														
	KTAS			282	292	302	310	315	322	330	336	350	360	1.036	0.963
	FUEL FLOW			4035	4303	4595	4847	5089	5342	5632	5909	6484	7053	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **– – –VMIN LESS THAN 180 KTAS.**

Figure A4-3. (Sheet 16)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW−1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	----	----	----	----	----	----	----	----						
VMIN	---	---	---	---	---	---	---	---						
180	2569	2935	3332	3849	4484	5246	6164	7313					1.140	0.890
210	2227	2488	2785	3112	3493	3910	4360	4900					1.098	0.908
240	2104	2293	2507	2748	3014	3309	3641	4004					1.084	0.921
270	2144	2276	2426	2591	2788	3001	3232	3498					1.075	0.947
300	2272	2373	2484	2607	2751	2906	3072	3260					1.060	0.967
330	2462	2542	2631	2730	2838	2955	3085	3231					1.047	0.982
360	2700	2767	2840	2921	3009	3105	3209	3319					1.038	0.989
390	2982	3035	3097	3165	3240	3320	3407	3500					1.027	0.999
420	3326	3368	3414	3468	3532	3600	3675	3755					1.019	1.003
450	3708	3745	3784	3826	3873	3928	3991	4059					1.009	1.015
480	4166	4195	4227	4265	4305	4350	4399	4454					0.999	1.020
510	4698	4719	4745	4774	4807	4848	4893	4941					0.992	1.033
540	5351	5370	5392	5416	5444	5476	5510	5548					0.979	1.078
570	6466	6479	6496	6517	6540	6565	6592	6621					0.932	1.257
600	9314	9338	9364	9394	9429	9467	9507	9551					0.808	1.269
630	13,371	13,411	13,456	13,504	13,557	13,607	13,659	13,714					0.802	1.240
660														
MIL	13,909	13,906	13,903	13,899	13,895	13,892	13,888	13,884					0.837	1.167
VMAX	633	632	632	632	632	631	631	631					1.011	0.996
MAX ENDURANCE														
KTAS	243	254	267	279	290	302	312	317					1.037	0.961
FUEL FLOW	2103	2263	2426	2587	2747	2906	3064	3222					1.051	0.948
MAX RANGE														
KTAS	331	350	367	380	380	385	400	415					1.037	0.961
FUEL FLOW	2469	2684	2898	3073	3152	3275	3493	3708					1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
MIL	----	----	----	----	----	----	----	----	8593	8660	8714		1.040	0.948
VMIN	---	---	---	---	---	---	---	---	184	192	201		1.038	0.962
180	2622	2994	3394	3919	4560	5329	6273	7433					1.139	0.891
210	2297	2560	2858	3189	3574	3997	4451	5000	5627	6423	7337		1.097	0.904
240	2204	2391	2603	2844	3112	3411	3747	4114	4534	4991	5499		1.089	0.914
270	2277	2408	2558	2722	2917	3127	3358	3628	3920	4241	4594		1.076	0.938
300	2443	2543	2653	2775	2917	3071	3235	3423	3628	3850	4105		1.060	0.963
330	2678	2755	2842	2941	3047	3162	3291	3435	3589	3757	3944		1.048	0.980
360	2964	3029	3101	3180	3267	3362	3464	3574	3690	3823	3974		1.036	0.988
390	3301	3352	3413	3480	3554	3633	3718	3810	3909	4018	4133		1.024	0.999
420	3710	3751	3796	3849	3911	3979	4051	4132	4221	4314	4416		1.015	1.004
450	4165	4202	4239	4281	4329	4386	4451	4522	4597	4683	4776		1.008	1.019
480	4723	4751	4784	4823	4864	4911	4963	5023	5092	5165	5242		0.997	1.026
510	5390	5412	5437	5466	5500	5541	5587	5636	5691	5753	5823		0.987	1.038
540	6209	6226	6247	6271	6298	6328	6361	6397	6437	6480	6525		0.973	1.098
570	7717	7729	7743	7759	7778	7799	7822	7847	7877	7911	7947		0.910	1.313
600	11,753	11,769	11,788	11,812	11,847	11,885	11,926	11,970	12,018	12,068	12,130		0.776	1.376
630														
660														
MIL	13,663	13,661	13,660	13,658	13,656	13,653	13,650	13,647	13,644	13,640	13,637		0.845	1.120
VMAX	612	612	612	611	611	611	611	611	610	610	610		1.014	0.976
MAX ENDURANCE														
KTAS	237	248	259	270	280	291	301	310	317	326	334		1.037	0.961
FUEL FLOW	2203	2375	2549	2722	2894	3065	3235	3405	3575	3755	3938		1.051	0.948
MAX RANGE														
KTAS	317	326	343	358	373	380	380	390	399	411	422		1.037	0.961
FUEL FLOW	2563	2723	2946	3165	3384	3529	3620	3809	4000	4218	4438		1.051	0.948

Figure A4-3. (Sheet 17)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	MIL	––––	––––	––––	––––	––––	––––	––––	––––	8600	8666	8775	8884	1.038	0.948
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	185	193	211	229	1.040	0.962
	180	2676	3053	3457	3989	4636	5412	6381	7559					1.138	0.893
	210	2367	2631	2931	3266	3656	4084	4545	5102	5735	6550			1.095	0.906
	240	2305	2490	2699	2940	3209	3513	3852	4224	4651	5112	6181	7600	1.088	0.910
	270	2411	2541	2690	2853	3046	3254	3486	3761	4055	4381	5129	6063	1.080	0.938
	300	2615	2713	2822	2942	3084	3236	3399	3588	3796	4020	4564	5214	1.060	0.963
	330	2893	2969	3054	3151	3256	3370	3497	3642	3800	3973	4367	4819	1.048	0.981
	360	3229	3292	3363	3440	3524	3619	3720	3831	3952	4089	4411	4771	1.033	0.990
	390	3620	3670	3730	3796	3867	3947	4035	4130	4236	4350	4599	4896	1.021	1.004
	420	4095	4136	4182	4237	4301	4372	4449	4535	4628	4727	4943	5192	1.013	1.010
	450	4644	4683	4724	4769	4819	4878	4947	5021	5100	5186	5383	5603	1.002	1.022
	480	5318	5346	5379	5419	5463	5512	5564	5625	5696	5771	5937	6138	0.992	1.035
	510	6128	6149	6173	6201	6233	6274	6319	6368	6426	6492	6649	6824	0.984	1.046
	540	7124	7139	7161	7185	7213	7245	7280	7319	7362	7408	7515	7664	0.964	1.114
	570	9094	9104	9115	9127	9141	9158	9178	9200	9227	9258	9328	9410	0.894	1.364
	600														
	630														
	660														
	MIL	13,484	13,484	13,483	13,482	13,481	13,478	13,476	13,474	13,471	13,468	13,460	13,452	0.850	1.089
	VMAX	596	596	596	596	596	596	596	596	595	595	594	594	1.014	0.974
	MAX ENDURANCE														
	KTAS	236	247	259	270	280	288	298	308	317	322	338	355	1.037	0.961
	FUEL FLOW	2299	2483	2669	2853	3036	3217	3398	3581	3766	3963	4361	4767	1.051	0.948
	MAX RANGE														
	KTAS	309	317	331	344	357	370	378	380	380	388	407	423	1.037	0.961
	FUEL FLOW	2691	2842	3061	3281	3499	3718	3895	4014	4123	4326	4789	5227	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
DRAG INDEX = 150	MIL	––––	––––	––––	––––	––––	––––	––––	––––	8607	8672	8782	8893	1.037	0.948
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	185	194	212	230	1.040	0.962
	180	2730	3111	3521	4058	4712	5494	6489	7685					1.137	0.894
	210	2436	2702	3003	3342	3738	4172	4639	5203	5843	6678			1.093	0.908
	240	2406	2588	2795	3035	3310	3616	3958	4335	4769	5236	6320	7773	1.085	0.914
	270	2546	2675	2823	2984	3174	3381	3615	3894	4192	4521	5279	6233	1.077	0.941
	300	2787	2884	2991	3110	3250	3401	3566	3757	3968	4190	4743	5402	1.056	0.967
	330	3109	3182	3265	3361	3465	3578	3707	3856	4019	4192	4587	5050	1.043	0.985
	360	3493	3555	3624	3699	3784	3881	3986	4102	4227	4366	4687	5057	1.029	0.996
	390	3941	3991	4053	4120	4196	4280	4372	4471	4578	4692	4944	5251	1.016	1.010
	420	4505	4548	4596	4653	4720	4792	4871	4956	5050	5152	5378	5633	1.005	1.016
	450	5158	5198	5239	5285	5336	5397	5468	5544	5626	5715	5919	6148	0.995	1.027
	480	5942	5970	6005	6047	6093	6144	6199	6265	6341	6422	6601	6813	0.987	1.041
	510	6917	6938	6964	6993	7028	7072	7121	7175	7233	7302	7466	7650	0.974	1.053
	540	8121	8133	8152	8174	8200	8231	8265	8304	8347	8393	8501	8658	0.957	1.124
	570	10,572	10,579	10,586	10,592	10,600	10,611	10,625	10,641	10,663	10,689	10,751	10,824	0.880	1.158
	600														
	630														
	660														
	MIL	13,346	13,347	13,348	13,348	13,346	13,345	13,343	13,342	13,340	13,338	13,332	13,326	0.855	1.068
	VMAX	584	584	584	584	584	584	584	584	584	584	583	583	1.016	0.971
	MAX ENDURANCE														
	KTAS	230	241	251	264	274	283	293	301	309	317	328	344	1.037	0.961
	FUEL FLOW	2393	2588	2786	2980	3173	3365	3560	3757	3959	4162	4586	5032	1.051	0.948
	MAX RANGE														
	KTAS	303	317	318	331	344	352	363	370	380	380	389	405	1.037	0.961
	FUEL FLOW	2817	3034	3141	3370	3600	3796	4024	4214	4439	4562	4929	5419	1.051	0.948

Figure A4-3. (Sheet 18)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW−1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	8614	8679	8735	8846	8958	1.037	0.948
VMIN	−−−	−−−	−−−	−−−	−−−	−−−	−−−	186	195	204	222	240	1.040	0.962
180	3170	3584	4128	4791	5576	6596	7810						1.138	0.883
210	2774	3077	3419	3821	4259	4733	5304	5954	6805	7766			1.097	0.910
240	2687	2891	3131	3410	3719	4066	4444	4887	5363	5888	7156		1.086	0.915
270	2808	2955	3115	3303	3512	3746	4028	4330	4663	5037	5891	6958	1.076	0.933
300	3054	3160	3277	3416	3569	3736	3931	4139	4361	4622	5250	5982	1.056	0.965
330	3396	3477	3572	3677	3793	3925	4078	4240	4412	4602	5042	5552	1.042	0.984
360	3820	3891	3969	4055	4156	4265	4381	4505	4643	4803	5157	5560	1.026	0.998
390	4333	4396	4467	4543	4627	4717	4816	4927	5044	5169	5449	5791	1.012	1.013
420	4978	5026	5084	5152	5227	5308	5397	5493	5596	5709	5954	6224	1.001	1.020
450	5739	5780	5828	5880	5942	6016	6094	6179	6271	6369	6586	6834	0.987	1.031
480	6651	6686	6729	6775	6827	6883	6950	7029	7113	7203	7403	7637	0.980	1.046
510	7786	7809	7837	7869	7912	7958	8013	8072	8143	8227	8412	8620	0.969	1.054
540	9184	9202	9224	9250	9280	9314	9352	9394	9441	9490	9629	9804	0.952	1.135
570	12,192	12,194	12,192	12,193	12,198	12,205	12,215	12,230	12,251	12,276	12,333	12,444	0.869	1.173
600														
630														
660														
MIL	13,242	13,243	13,242	13,242	13,242	13,241	13,240	13,239	13,238	13,236	13,233	13,228	0.858	1.052
VMAX	575	575	575	575	575	575	575	575	575	575	574	574	1.011	0.969
	MAX ENDURANCE													
KTAS	233	243	257	266	276	285	293	301	309	317	326	341	1.037	0.961
FUEL FLOW	2683	2890	3099	3302	3508	3715	3927	4139	4353	4572	5040	5521	1.051	0.948
	MAX RANGE													
KTAS	306	317	320	329	339	348	358	367	374	380	391	408	1.037	0.961
FUEL FLOW	3117	3321	3457	3666	3889	4116	4353	4594	4798	5015	5463	6016	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW−1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	8621	8685	8741	8855	8970	1.036	0.948
VMIN	−−−	−−−	−−−	−−−	−−−	−−−	−−−	187	196	205	224	243	1.040	0.962
180	3228	3648	4197	4870	5658	6703	7934						1.136	0.884
210	2845	3152	3496	3905	4346	4827	5405	6068	6931	7916			1.095	0.911
240	2785	2988	3227	3511	3823	4174	4555	5004	5490	6021	7308		1.084	0.918
270	2941	3087	3246	3434	3642	3877	4162	4469	4809	5186	6054	7143	1.073	0.937
300	3225	3329	3445	3586	3741	3912	4104	4312	4537	4802	5437	6191	1.051	0.970
330	3610	3692	3789	3897	4016	4149	4300	4461	4637	4831	5275	5783	1.037	0.988
360	4099	4171	4251	4339	4438	4545	4661	4788	4931	5094	5452	5852	1.021	1.003
390	4685	4748	4817	4896	4982	5075	5177	5289	5409	5537	5816	6155	1.008	1.018
420	5429	5477	5535	5605	5681	5764	5854	5951	6054	6165	6411	6686	0.994	1.026
450	6306	6347	6393	6444	6506	6580	6660	6746	6839	6939	7163	7428	0.978	1.039
480	7365	7399	7441	7488	7540	7598	7667	7750	7838	7933	8144	8379	0.974	1.048
510	8674	8696	8723	8755	8798	8845	8900	8960	9032	9121	9316	9535	0.962	1.059
540	10,303	10,319	10,338	10,361	10,388	10,420	10,455	10,495	10,538	10,585	10,721	10,894	0.949	1.147
570														
600														
630														
660														
MIL	13,123	13,123	13,123	13,123	13,123	13,122	13,122	13,120	13,118	13,115	13,108	13,092	0.860	1.043
VMAX	566	566	566	566	566	566	566	566	566	566	565	564	0.999	0.971
	MAX ENDURANCE													
KTAS	227	237	246	261	270	278	286	294	302	309	319	333	1.037	0.961
FUEL FLOW	2771	2987	3205	3426	3642	3863	4084	4308	4536	4770	5259	5763	1.051	0.948
	MAX RANGE													
KTAS	297	309	317	319	328	338	347	354	364	373	384	397	1.037	0.961
FUEL FLOW	3187	3426	3617	3763	3988	4236	4484	4713	4981	5253	5721	6262	1.051	0.948

Figure A4-3. (Sheet 19)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL		––––	––––	––––	––––	––––	––––	8629	8692	8748	8864	8983	1.036	0.948
VMIN		–––	–––	–––	–––	–––	–––	188	197	206	225	245	1.041	0.962
180		3713	4266	4948	5742	6809	8058						1.143	0.876
210		3227	3574	3989	4434	4922	5506	6188	7058	8066			1.105	0.911
240		3084	3326	3611	3927	4283	4669	5122	5616	6154	7460		1.088	0.921
270		3219	3378	3568	3775	4008	4298	4608	4956	5334	6219	7328	1.072	0.935
300		3499	3617	3760	3918	4087	4278	4488	4714	4985	5625	6403	1.049	0.970
330		3916	4015	4124	4241	4373	4524	4690	4869	5067	5509	6026	1.034	0.990
360		4458	4536	4622	4723	4834	4953	5082	5228	5392	5747	6152	1.018	1.006
390		5113	5183	5263	5350	5445	5549	5661	5781	5907	6183	6532	1.004	1.020
420		5944	6002	6070	6145	6226	6315	6412	6516	6631	6884	7182	0.989	1.030
450		6928	6974	7026	7089	7166	7250	7342	7441	7547	7780	8044	0.977	1.042
480		8153	8195	8241	8292	8348	8416	8500	8592	8691	8911	9158	0.966	1.051
510		9632	9658	9689	9732	9779	9832	9890	9960	10,049	10,244	10,463	0.959	1.062
540		11,478	11,496	11,518	11,545	11,575	11,611	11,651	11,695	11,743	11,885	12,072	0.943	1.065
570														
600														
630														
660														
MIL		12,963	12,962	12,961	12,959	12,957	12,954	12,950	12,945	12,939	12,920	12,873	0.861	1.036
VMAX		556	556	556	556	556	555	555	555	554	553	551	0.984	0.972
MAX ENDURANCE														
KTAS		235	245	255	263	272	281	289	297	304	319	333	1.037	0.961
FUEL FLOW		3078	3308	3543	3770	4001	4233	4470	4711	4963	5472	6010	1.051	0.948
MAX RANGE														
KTAS		300	310	317	323	334	344	354	363	371	380	387	1.037	0.961
FUEL FLOW		3502	3726	3935	4148	4421	4695	4981	5264	5553	6009	6481	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			––––	––––	––––	––––	––––	8638	8698	8754	8873	8996	1.036	0.948
VMIN			–––	–––	–––	–––	–––	189	198	208	227	247	1.041	0.962
180			4336	5026	5828	6914	8560						1.144	0.877
210			3653	4072	4524	5019	5606	6311	7184	8215			1.113	0.911
240			3424	3713	4032	4391	4783	5243	5743	6288	7611		1.089	0.920
270			3513	3701	3909	4140	4435	4751	5102	5487	6385	7513	1.074	0.936
300			3793	3938	4094	4263	4456	4666	4898	5168	5821	6615	1.047	0.972
330			4243	4350	4467	4601	4755	4925	5107	5304	5742	6280	1.031	0.992
360			4828	4917	5019	5132	5254	5384	5527	5690	6046	6465	1.017	1.007
390			5562	5641	5727	5821	5923	6034	6152	6281	6564	6940	1.001	1.023
420			6472	6541	6617	6699	6791	6891	7003	7126	7394	7690	0.989	1.034
450			7597	7651	7716	7793	7876	7965	8063	8171	8413	8690	0.971	1.045
480			8978	9024	9076	9134	9204	9289	9381	9479	9698	9945	0.962	1.051
510			10,603	10,634	10,677	10,725	10,778	10,837	10,911	11,006	11,215	11,449	0.957	1.066
540			12,705	12,724									0.952	1.081
570														
600														
630														
660														
MIL			12,706	12,702	12,697	12,692	12,685	12,677	12,668	12,654	12,607	12,544	0.868	1.031
VMAX			541	541	540	540	540	539	539	538	535	531	0.978	0.977
MAX ENDURANCE														
KTAS			245	254	263	272	280	288	296	303	318	332	1.037	0.961
FUEL FLOW			3410	3655	3894	4135	4380	4629	4888	5151	5683	6267	1.051	0.948
MAX RANGE														
KTAS			301	312	321	328	335	344	353	362	378	380	1.037	0.961
FUEL FLOW			3804	4074	4325	4574	4826	5119	5421	5725	6322	6743	1.051	0.948

Figure A4-3. (Sheet 20)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL			−−−−	−−−−	−−−−	−−−−	8567	8646	8704	8762	8882	9009	1.037	0.948
VMIN			−−−	−−−	−−−	−−−	181	190	199	209	228	249	1.041	0.962
180			4407	5104	5917	7019							1.145	0.879
210			3731	4156	4614	5116	5706	6434	7310	8364			1.112	0.912
240			3523	3815	4138	4500	4897	5366	5869	6426	7776		1.087	0.923
270			3649	3837	4043	4274	4572	4896	5248	5642	6551	7697	1.070	0.939
300			3972	4116	4272	4442	4635	4851	5082	5351	6020	6828	1.043	0.975
330			4472	4581	4700	4836	4994	5165	5345	5540	5987	6540	1.027	0.995
360			5131	5221	5324	5436	5557	5685	5827	5990	6358	6796	1.012	1.009
390			5942	6019	6104	6196	6301	6415	6536	6673	6978	7352	1.000	1.029
420			6966	7039	7120	7208	7304	7407	7517	7639	7909	8220	0.983	1.036
450			8235	8291	8357	8437	8523	8616	8718	8827	9066	9342	0.966	1.048
480			9777	9821	9871	9929	10,000	10,089	10,184	10,285	10,513	10,770	0.960	1.054
510			11,612	11,640	11,681	11,726	11,778	11,834	11,906	12,001	12,209		0.941	1.073
540														
570														
600														
630														
660														
MIL			12,413	12,406	12,398	12,387	12,375	12,361	12,345	12,320	12,253	12,168	0.880	1.018
VMAX			524	523	523	522	521	521	520	518	514	509	0.975	0.979
MAX ENDURANCE														
KTAS			244	254	263	271	280	288	296	303	318	332	1.037	0.961
FUEL FLOW			3513	3769	4018	4270	4528	4792	5065	5339	5905	6531	1.051	0.948
MAX RANGE														
KTAS			300	311	317	321	327	336	345	354	365	380	1.037	0.961
FUEL FLOW			3970	4256	4480	4689	4951	5260	5570	5884	6444	7121	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

Figure A4-3. (Sheet 21)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW−1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	**MIL**	----	----	----	----	----	----	7180	7245					1.048	0.942
	VMIN	---	---	---	---	---	---	187	197					1.038	0.962
	180	2693	3145	3718	4442	5351	6494							1.145	0.869
	210	2279	2585	2938	3350	3795	4345	4965	5805					1.103	0.899
	240	2097	2315	2566	2846	3166	3535	3951	4423					1.092	0.907
	270	2059	2212	2391	2594	2818	3076	3361	3692					1.082	0.929
	300	2117	2232	2367	2518	2681	2868	3071	3287					1.067	0.954
	330	2252	2346	2451	2564	2692	2837	2994	3162					1.057	0.974
	360	2441	2518	2602	2696	2798	2908	3026	3163					1.044	0.984
	390	2672	2736	2808	2886	2970	3063	3162	3269					1.032	0.995
	420	2950	2999	3058	3124	3196	3274	3358	3448					1.025	1.000
	450	3282	3323	3368	3420	3481	3547	3618	3695					1.012	1.013
	480	3676	3712	3752	3797	3846	3900	3961	4027					1.001	1.019
	510	4138	4166	4198	4236	4278	4325	4377	4439					0.994	1.033
	540	4741	4770	4801	4835	4873	4914	4959	5007					0.974	1.097
	570	6075	6101	6129	6160	6193	6229	6270	6316					0.875	1.268
	600	8805	8843	8885	8929	8978	9030	9085	9145					0.808	1.290
	630	12,447	12,499	12,557	12,616	12,675	12,739							0.818	1.247
	660														
	MIL	12,725	12,719	12,712	12,704	12,697	12,689	12,680	12,671					0.845	1.074
	VMAX	634	634	633	632	632	631	630	629					1.007	0.982
	MAX ENDURANCE														
	KTAS	264	277	290	303	312	320	332	344					1.038	0.960
	FUEL FLOW	2057	2210	2363	2517	2672	2833	2993	3154					1.052	0.946
	MAX RANGE														
	KTAS	360	374	375	390	407	422	437	437					1.038	0.960
	FUEL FLOW	2444	2612	2691	2889	3092	3289	3486	3568					1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

	KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 50	**MIL**	----	----	----	----	----	----	7185	7252	7319	7384	7451		1.050	0.941
	VMIN	---	---	---	---	---	---	188	198	208	218	228		1.038	0.962
	180	2744	3203	3783	4511	5438	6603							1.143	0.871
	210	2341	2650	3008	3425	3877	4432	5071	5912	6925				1.114	0.899
	240	2181	2396	2650	2932	3260	3631	4055	4532	5047	5669	6391		1.101	0.901
	270	2173	2325	2503	2704	2927	3187	3482	3815	4177	4592	5059		1.088	0.919
	300	2265	2379	2513	2662	2824	3011	3212	3434	3710	4005	4322		1.071	0.948
	330	2439	2532	2635	2747	2873	3018	3175	3342	3533	3749	3978		1.057	0.966
	360	2671	2746	2829	2921	3022	3132	3251	3389	3538	3707	3891		1.043	0.983
	390	2950	3014	3084	3160	3244	3337	3437	3545	3659	3788	3942		1.030	0.994
	420	3285	3333	3392	3457	3528	3606	3691	3782	3883	3997	4119		1.022	1.001
	450	3681	3721	3767	3819	3880	3948	4023	4109	4200	4298	4403		1.010	1.018
	480	4155	4193	4238	4288	4343	4404	4473	4548	4627	4712	4803		0.999	1.028
	510	4754	4785	4820	4862	4908	4958	5013	5074	5143	5218	5298		0.985	1.039
	540	5527	5552	5582	5614	5650	5691	5736	5784	5838	5900	5971		0.966	1.117
	570	7325	7347	7374	7403	7435	7470	7511	7556	7605	7656	7710		0.851	1.331
	600	11,248	11,279	11,317	11,361	11,409	11,465	11,529	11,598	11,683	11,773	11,868		0.770	1.387
	630														
	660														
	MIL	12,401	12,398	12,395	12,391	12,386	12,382	12,377	12,372	12,365	12,358	12,351		0.861	1.023
	VMAX	608	608	608	607	607	607	606	606	605	605	604		1.017	0.967
	MAX ENDURANCE														
	KTAS	253	266	278	289	300	311	319	329	340	351	362		1.038	0.960
	FUEL FLOW	2160	2325	2490	2657	2824	2993	3167	3342	3519	3704	3891		1.052	0.946
	MAX RANGE														
	KTAS	336	354	372	374	384	398	410	423	428	437	437		1.038	0.960
	FUEL FLOW	2482	2702	2923	3023	3195	3401	3601	3810	3958	4143	4255		1.052	0.946

Figure A4-3. (Sheet 22)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−17°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	−20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	––––	––––	––––	––––	7191	7260	7326	7393	7526	7707	1.051	0.941
VMIN	–––	–––	–––	–––	–––	–––	189	199	209	219	239	260	1.038	0.962
180	2795	3261	3850	4581	5524	6711							1.141	0.873
210	2403	2715	3080	3500	3961	4518	5175	6019	7055				1.112	0.900
240	2264	2477	2735	3018	3354	3726	4162	4640	5167	5798	7414		1.100	0.903
270	2287	2439	2614	2814	3036	3303	3604	3937	4310	4728	5742	7062	1.091	0.917
300	2413	2526	2658	2807	2969	3154	3355	3586	3864	4161	4865	5686	1.070	0.948
330	2626	2717	2819	2930	3056	3201	3357	3528	3729	3944	4427	5070	1.054	0.968
360	2901	2974	3056	3148	3250	3360	3478	3617	3779	3953	4336	4792	1.041	0.984
390	3229	3292	3362	3439	3523	3616	3717	3832	3957	4092	4413	4782	1.028	0.999
420	3624	3672	3731	3796	3869	3954	4046	4145	4253	4367	4619	4922	1.019	1.008
450	4102	4146	4195	4251	4318	4391	4470	4556	4648	4747	4967	5232	1.004	1.023
480	4699	4737	4780	4829	4882	4944	5014	5090	5173	5265	5466	5693	0.991	1.033
510	5410	5441	5477	5520	5567	5619	5676	5741	5815	5893	6064	6255	0.983	1.045
540	6357	6381	6409	6439	6473	6512	6553	6599	6649	6710	6858	7033	0.961	1.139
570	8716	8736	8760	8788	8819	8853	8893	8939	8989	9043	9178	9364	0.825	1.393
600														
630														
660														
MIL	12,196	12,194	12,189	12,184	12,178	12,171	12,164	12,156	12,147	12,137	12,116	12,090	0.866	1.003
VMAX	593	593	593	592	592	592	591	591	590	590	589	588	1.017	0.965
	MAX ENDURANCE													
KTAS	252	265	277	286	298	308	314	326	336	345	362	376	1.038	0.960
FUEL FLOW	2256	2432	2609	2788	2968	3148	3332	3526	3726	3928	4335	4761	1.052	0.946
	MAX RANGE													
KTAS	324	340	356	368	374	379	387	397	408	419	437	437	1.038	0.960
FUEL FLOW	2577	2798	3017	3219	3367	3511	3687	3902	4128	4356	4787	5064	1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	7197	7267	7333	7402	7539	7730	1.051	0.941
VMIN	–––	–––	–––	–––	–––	–––	190	200	210	221	241	263	1.038	0.962
180	2847	3319	3917	4651	5610	7126							1.136	0.885
210	2465	2780	3152	3575	4046	4605	5279	6128					1.099	0.904
240	2348	2559	2819	3105	3448	3822	4268	4749	5295	5927			1.093	0.909
270	2401	2552	2726	2925	3145	3422	3725	4062	4445	4863	5906	7252	1.087	0.921
300	2562	2673	2804	2953	3114	3298	3509	3739	4017	4322	5036	5891	1.065	0.952
330	2813	2903	3004	3116	3241	3384	3545	3725	3926	4140	4635	5284	1.049	0.973
360	3131	3205	3287	3379	3479	3589	3716	3864	4027	4200	4586	5058	1.037	0.991
390	3514	3576	3645	3723	3813	3912	4022	4139	4264	4398	4724	5115	1.021	1.005
420	3981	4032	4096	4166	4244	4328	4420	4520	4628	4743	5012	5332	1.012	1.014
450	4558	4601	4650	4706	4773	4847	4926	5018	5117	5224	5461	5724	0.998	1.031
480	5261	5301	5346	5397	5452	5517	5591	5671	5757	5848	6048	6275	0.986	1.039
510	6104	6134	6168	6209	6254	6304	6359	6424	6497	6575	6759	6971	0.979	1.051
540	7229	7253	7281	7312	7347	7387	7431	7478	7532	7600	7764	7946	0.953	1.162
570	10,223	10,238	10,262	10,288	10,318	10,352	10,393	10,440	10,491	10,546	10,688	10,895	0.799	1.237
600														
630														
660														
MIL	11,931	11,930	11,926	11,923	11,918	11,914	11,908	11,902	11,896	11,888	11,872	11,848	0.877	0.997
VMAX	580	579	579	579	579	579	578	578	578	577	577	575	1.020	0.964
	MAX ENDURANCE													
KTAS	242	260	271	281	291	301	311	316	325	333	352	367	1.038	0.960
FUEL FLOW	2348	2538	2726	2916	3106	3298	3498	3710	3924	4139	4580	5053	1.052	0.946
	MAX RANGE													
KTAS	312	327	340	353	366	372	374	381	392	402	415	434	1.038	0.960
FUEL FLOW	2649	2875	3093	3314	3538	3698	3845	4038	4287	4527	4955	5487	1.052	0.946

Figure A4-3. (Sheet 23)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW−1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	−−−−	−−−−	−−−−	−−−−	7132	7204	7274	7341	7412	7480	7643	7871	1.051	0.941
VMIN	−−−	−−−	−−−	−−−	181	191	201	211	222	232	254	276	1.038	0.962
180	3376	3982	4726	5696									1.141	0.876
210	2845	3224	3649	4129	4691	5383	6248						1.107	0.903
240	2641	2903	3196	3542	3918	4374	4857	5422	6056	6851			1.098	0.902
270	2665	2839	3036	3257	3542	3846	4190	4579	4999	5499	6702		1.086	0.923
300	2820	2951	3099	3259	3449	3663	3892	4172	4489	4831	5613	6658	1.073	0.952
330	3091	3191	3301	3425	3577	3744	3924	4123	4335	4575	5165	5863	1.050	0.974
360	3438	3518	3612	3720	3838	3966	4114	4276	4448	4639	5083	5578	1.036	0.991
390	3874	3949	4032	4123	4223	4332	4449	4573	4710	4877	5249	5662	1.018	1.006
420	4413	4477	4547	4624	4708	4800	4908	5026	5151	5284	5574	5928	1.010	1.020
450	5076	5128	5187	5259	5338	5424	5515	5614	5719	5835	6087	6371	0.993	1.031
480	5893	5937	5985	6040	6103	6177	6257	6343	6435	6542	6776	7040	0.984	1.042
510	6850	6885	6929	6978	7032	7091	7161	7243	7329	7422	7622	7845	0.975	1.054
540	8192	8217	8246	8279	8317	8359	8406	8459	8529	8613	8795	8995	0.943	1.177
570														
600														
630														
660														
MIL	11,723	11,722	11,719	11,717	11,714	11,710	11,706	11,701	11,696	11,691	11,672	11,649	0.887	0.993
VMAX	569	569	569	569	569	569	569	568	568	568	567	566	1.020	0.964
MAX ENDURANCE														
KTAS	246	263	274	284	294	303	311	315	324	333	348	362	1.038	0.960
FUEL FLOW	2636	2835	3035	3236	3446	3663	3881	4105	4333	4573	5070	5577	1.052	0.946
MAX RANGE														
KTAS	315	328	341	348	358	369	374	380	388	397	419	436	1.038	0.960
FUEL FLOW	2945	3176	3410	3584	3815	4057	4250	4446	4681	4955	5558	6129	1.052	0.946

*TEMPERATURE DEVIATION FROM STANDARD DAY. −−−VMIN LESS THAN 180 KTAS.

DRAG INDEX = 250

KTAS \ GW−1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	−−−−	−−−−	−−−−	−−−−	7138	7211	7281	7350	7421	7491	7665	7901	1.051	0.941
VMIN	−−−	−−−	−−−	−−−	181	192	202	213	224	234	256	279	1.038	0.962
180	3434	4047	4808	5781									1.142	0.878
210	2909	3296	3725	4212	4777	5487	6373						1.105	0.905
240	2723	2988	3288	3636	4019	4479	4966	5549	6184	7008			1.096	0.905
270	2779	2952	3147	3373	3661	3967	4322	4713	5134	5657	6884		1.084	0.926
300	2969	3099	3245	3409	3605	3818	4045	4332	4657	5001	5815	6867	1.068	0.956
330	3279	3378	3490	3623	3777	3944	4122	4320	4543	4786	5377	6112	1.044	0.978
360	3680	3766	3864	3973	4091	4218	4364	4526	4711	4908	5352	5845	1.031	0.995
390	4190	4264	4346	4436	4535	4643	4768	4903	5048	5216	5587	5997	1.014	1.013
420	4801	4868	4944	5027	5118	5217	5325	5442	5567	5701	5992	6353	1.003	1.023
450	5582	5632	5691	5762	5840	5925	6017	6116	6221	6340	6609	6907	0.988	1.035
480	6494	6540	6592	6650	6719	6800	6888	6982	7082	7188	7424	7696	0.978	1.046
510	7623	7657	7698	7745	7797	7855	7927	8012	8102	8199	8409	8644	0.966	1.060
540	9192	9216	9244	9276	9314	9356	9403	9458	9535	9630	9834	10,060	0.938	1.204
570														
600														
630														
660														
MIL	11,555	11,555	11,555	11,554	11,552	11,549	11,546	11,542	11,537	11,528	11,494	11,454	0.894	0.991
VMAX	561	561	561	561	561	561	561	561	560	560	558	556	1.011	0.964
MAX ENDURANCE														
KTAS	241	257	267	278	286	295	303	312	317	325	340	355	1.038	0.960
FUEL FLOW	2722	2937	3146	3363	3588	3815	4044	4275	4526	4783	5305	5840	1.052	0.946
MAX RANGE														
KTAS	312	319	327	337	347	358	368	375	384	393	411	424	1.038	0.960
FUEL FLOW	3078	3257	3453	3693	3936	4189	4445	4679	4963	5257	5849	6407	1.052	0.946

Figure A4-3. (Sheet 24)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 300	MIL		−−−−	−−−−	−−−−	7143	7218	7287	7359	7431	7504	7687	7933	1.051	0.941
	VMIN		−−−	−−−	−−−	182	193	203	214	225	236	259	282	1.038	0.962
	180		4112	4890	5865									1.155	0.869
	210		3367	3803	4295	4865	5590	6498						1.113	0.907
	240		3072	3380	3730	4121	4585	5076	5676	6312	7164			1.094	0.905
	270		3065	3261	3491	3780	4091	4454	4847	5272	5816	7070		1.085	0.925
	300		3246	3396	3567	3761	3973	4199	4497	4826	5171	6017	7081	1.073	0.956
	330		3575	3692	3825	3979	4144	4321	4528	4757	4999	5590	6361	1.044	0.980
	360		4022	4120	4228	4344	4471	4623	4797	4983	5181	5621	6130	1.029	0.997
	390		4580	4663	4758	4865	4982	5109	5245	5389	5556	5926	6353	1.009	1.015
	420		5293	5367	5450	5539	5638	5745	5863	5988	6121	6424	6797	0.998	1.025
	450		6143	6201	6272	6353	6443	6540	6644	6756	6878	7150	7455	0.984	1.039
	480		7196	7246	7302	7371	7453	7542	7638	7742	7853	8094	8374	0.970	1.048
	510		8456	8498	8545	8597	8658	8734	8825	8925	9031	9263	9520	0.963	1.067
	540		10,316	10,341	10,371	10,406	10,446	10,491	10,542	10,617	10,711	10,915		0.927	1.079
	570														
	600														
	630														
	660														
	MIL		11,361	11,359	11,356	11,352	11,348	11,342	11,336	11,325	11,301	11,229	11,129	0.898	0.990
	VMAX		551	550	550	550	550	550	549	549	547	544	539	0.998	0.965
	MAX ENDURANCE														
	KTAS		251	262	272	281	291	299	307	316	324	340	355	1.038	0.960
	FUEL FLOW		3032	3254	3486	3721	3959	4199	4451	4715	4985	5533	6117	1.052	0.946
	MAX RANGE														
	KTAS		312	321	333	345	356	364	373	375	383	400	413	1.038	0.960
	FUEL FLOW		3355	3583	3859	4134	4413	4673	4951	5152	5449	6064	6679	1.052	0.946

*TEMPERATURE DEVIATION FROM STANDARD DAY. −−−VMIN LESS THAN 180 KTAS.

DRAG INDEX	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 350	MIL			−−−−	−−−−	7150	7225	7294	7368	7440	7517	7716	7965	1.051	0.941
	VMIN			−−−	−−−	183	194	204	216	226	238	261	285	1.038	0.962
	180			4970	5955									1.154	0.863
	210			3881	4378	4960	5693	6624						1.122	0.899
	240			3472	3824	4224	4690	5195	5802	6444	7319			1.099	0.907
	270			3380	3608	3900	4219	4586	4981	5420	5976	7256		1.082	0.924
	300			3554	3725	3918	4128	4360	4664	4994	5341	6220	7304	1.071	0.951
	330			3897	4028	4180	4345	4532	4743	4971	5212	5816	6610	1.041	0.981
	360			4375	4483	4605	4740	4896	5071	5257	5454	5894	6426	1.025	0.997
	390			5006	5103	5210	5328	5453	5588	5732	5898	6279	6719	1.005	1.016
	420			5795	5877	5966	6063	6169	6291	6424	6564	6873	7248	0.995	1.028
	450			6742	6817	6899	6989	7086	7191	7305	7430	7705	8009	0.978	1.041
	480			7920	7976	8045	8128	8218	8317	8427	8548	8814	9117	0.965	1.055
	510			9373	9422	9478	9539	9617	9710	9810	9916	10,147	10,403	0.956	1.069
	540														
	570														
	600														
	630														
	660														
	MIL			11,027	11,016	11,003	10,987	10,970	10,946	10,911	10,872	10,781	10,668	0.909	0.994
	VMAX			535	534	534	533	532	531	530	527	522	516	0.990	0.970
	MAX ENDURANCE														
	KTAS			261	271	280	290	299	307	316	324	340	355	1.038	0.960
	FUEL FLOW			3363	3606	3851	4100	4358	4628	4904	5187	5764	6402	1.052	0.946
	MAX RANGE														
	KTAS			318	329	340	346	355	363	372	375	385	402	1.038	0.960
	FUEL FLOW			3739	4018	4298	4528	4823	5112	5418	5642	6195	6914	1.052	0.946

Figure A4-3. (Sheet 25)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL			––––	––––	7157	7231	7303	7377	7451	7530	7747	8004	1.051	0.941
VMIN			–––	–––	184	195	206	217	228	240	264	289	1.038	0.962
180			5048	6057									1.156	0.865
210			3962	4461	5059	5796	6749						1.120	0.898
240			3564	3919	4326	4796	5318	5929	6587				1.090	0.910
270			3500	3726	4020	4349	4718	5115	5570	6136	7442		1.079	0.928
300			3714	3883	4074	4287	4526	4831	5163	5516	6423	7527	1.067	0.954
330			4101	4231	4384	4559	4748	4959	5186	5425	6059	6859	1.036	0.984
360			4642	4756	4881	5017	5174	5347	5532	5727	6187	6723	1.020	1.000
390			5356	5451	5558	5674	5799	5933	6076	6251	6647	7086	1.001	1.021
420			6227	6312	6406	6507	6619	6742	6876	7019	7328	7701	0.991	1.031
450			7300	7375	7458	7548	7646	7750	7862	7987	8285	8621	0.971	1.047
480			8630	8690	8764	8856	8955	9061	9175	9295	9560	9862	0.959	1.057
510			10,267	10,314	10,367	10,426	10,503						0.944	1.062
540														
570														
600														
630														
660														
MIL			10,685	10,671	10,654	10,633	10,607	10,569	10,524	10,474	10,365	10,280	0.925	0.982
VMAX			517	516	515	514	512	510	507	505	498	490	0.991	0.969
MAX ENDURANCE														
KTAS			261	271	280	289	298	307	315	324	339	354	1.038	0.960
FUEL FLOW			3471	3725	3980	4243	4521	4804	5093	5388	6016	6687	1.052	0.946
MAX RANGE														
KTAS			312	322	329	337	346	355	363	372	377	394	1.038	0.960
FUEL FLOW			3846	4118	4372	4646	4956	5265	5581	5906	6413	7151	1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure A4-3. (Sheet 26)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
MIL	----	----	----	----	5889	5955	6018	6083					1.051	0.942
VMIN	---	---	---	---	190	202	213	225					1.040	0.960
180	2942	3588	4416	5528									1.158	0.864
210	2376	2769	3207	3715	4353	5204							1.120	0.900
240	2116	2374	2685	3037	3460	3919	4465	5088					1.107	0.895
270	1998	2191	2404	2657	2947	3275	3646	4064					1.091	0.905
300	2001	2149	2311	2494	2697	2929	3204	3505					1.069	0.926
330	2089	2199	2320	2465	2621	2790	2990	3208					1.059	0.951
360	2223	2311	2409	2517	2633	2769	2918	3091					1.053	0.975
390	2401	2475	2556	2645	2743	2848	2960	3090					1.043	0.987
420	2612	2674	2743	2819	2901	2991	3087	3191					1.034	0.999
450	2892	2940	2997	3061	3132	3208	3290	3378					1.017	1.012
480	3228	3270	3318	3371	3431	3496	3566	3641					1.006	1.021
510	3632	3666	3705	3747	3793	3846	3906	3979					0.992	1.039
540	4136	4168	4203	4243	4286	4333	4385	4448					0.978	1.202
570	5755	5790	5827	5868	5915	5968	6025	6085					0.822	1.300
600	8519	8564	8613	8666	8723	8787	8865	8948					0.791	1.252
630	11,641												0.844	1.180
660														
MIL	11,244	11,219	11,192	11,164	11,133	11,099	11,062	11,017					0.873	1.007
VMAX	631	630	629	628	627	625	624	622					1.008	0.969
MAX ENDURANCE														
KTAS	283	296	310	325	340	355	368	372					1.039	0.959
FUEL FLOW	1992	2148	2307	2464	2618	2768	2914	3077					1.054	0.945
MAX RANGE														
KTAS	375	395	413	430	430	430	435	448					1.039	0.959
FUEL FLOW	2306	2505	2699	2884	2962	3047	3171	3359					1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **---VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
MIL	----	----	----	----	5895	5961	6026	6091	6155	6238	6344		1.052	0.941
VMIN	---	---	---	---	191	203	214	226	238	250	262		1.039	0.961
180	2999	3645	4484	5616									1.157	0.865
210	2437	2832	3277	3787	4436	5310							1.118	0.902
240	2187	2447	2765	3119	3549	4015	4569	5219	6042				1.106	0.892
270	2096	2288	2499	2760	3051	3386	3759	4186	4689	5245	5949		1.098	0.899
300	2132	2278	2439	2621	2829	3060	3337	3647	3987	4357	4786		1.081	0.921
330	2253	2362	2482	2625	2780	2956	3159	3375	3610	3904	4216		1.063	0.946
360	2421	2508	2605	2711	2826	2963	3127	3302	3489	3696	3933		1.057	0.970
390	2642	2714	2794	2882	2979	3088	3208	3347	3506	3676	3861		1.041	0.987
420	2903	2964	3031	3106	3188	3278	3383	3500	3625	3757	3908		1.033	1.000
450	3240	3286	3343	3406	3478	3559	3653	3755	3864	3980	4103		1.016	1.017
480	3643	3684	3733	3791	3860	3936	4018	4106	4201	4301	4409		1.004	1.028
510	4158	4196	4239	4286	4339	4400	4469	4544	4623	4708	4798		0.991	1.045
540	4832	4860	4892	4928	4968	5013	5064	5133	5209	5289	5374		0.971	1.241
570	6993	7029	7070	7113	7165	7223	7286	7352	7427	7521	7621		0.795	1.368
600														
630														
660														
MIL	10,583	10,577	10,572	10,565	10,558	10,551	10,541	10,531	10,521	10,510	10,497		0.909	0.988
VMAX	600	600	599	599	598	598	597	597	596	595	594		1.024	0.963
MAX ENDURANCE														
KTAS	270	284	297	312	326	341	353	364	369	375	389		1.039	0.959
FUEL FLOW	2096	2265	2438	2612	2780	2950	3126	3302	3480	3666	3861		1.054	0.945
MAX RANGE														
KTAS	369	370	387	403	419	427	430	430	435	445	455		1.039	0.959
FUEL FLOW	2475	2565	2769	2971	3182	3330	3455	3567	3726	3939	4146		1.054	0.945

Figure A4-3. (Sheet 27)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	−−−−	−−−−	5847	5901	5967	6033	6099	6166	6257	6477	6691	1.052	0.941
VMIN	−−−	−−−	−−−	180	192	204	216	228	240	252	277	300	1.039	0.961
180	3052	3704	4551										1.159	0.880
210	2498	2895	3346	3864	4519	5416							1.117	0.904
240	2258	2522	2845	3206	3638	4117	4673	5350					1.102	0.900
270	2195	2385	2594	2862	3155	3498	3873	4309	4820	5394			1.093	0.908
300	2263	2408	2567	2750	2962	3191	3476	3790	4130	4518	5453		1.076	0.926
330	2417	2524	2643	2785	2947	3126	3328	3546	3788	4083	4746	5569	1.058	0.947
360	2619	2705	2801	2907	3029	3178	3340	3514	3703	3925	4407	5022	1.052	0.970
390	2882	2953	3033	3127	3230	3347	3472	3610	3770	3949	4348	4806	1.038	0.990
420	3195	3256	3325	3409	3501	3600	3709	3825	3950	4083	4424	4814	1.027	1.004
450	3602	3655	3720	3792	3872	3958	4051	4152	4261	4381	4657	4980	1.007	1.021
480	4115	4161	4214	4273	4343	4418	4500	4589	4687	4797	5043	5317	0.995	1.031
510	4732	4768	4809	4855	4911	4978	5055	5137	5225	5319	5524	5764	0.989	1.054
540	5581	5609	5640	5677	5718	5762	5812	5882	5958	6039	6213	6405	0.961	1.274
570	8432	8465	8501	8541	8589	8643	8702	8765	8835	8932	9175	9445	0.770	1.362
600														
630														
660														
MIL	10,346	10,341	10,337	10,332	10,330	10,329	10,328	10,328	10,327	10,326	10,323	10,320	0.915	0.978
VMAX	585	584	584	584	583	583	582	582	581	581	579	577	1.024	0.962
	MAX ENDURANCE													
KTAS	268	282	293	305	319	330	341	351	362	370	389	405	1.039	0.959
FUEL FLOW	2195	2376	2560	2749	2937	3126	3316	3507	3701	3912	4348	4792	1.054	0.945
	MAX RANGE													
KTAS	356	369	369	377	394	406	418	430	430	430	444	461	1.039	0.959
FUEL FLOW	2591	2764	2862	3016	3262	3478	3693	3912	4031	4156	4595	5076	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	−−−−	−−−−	−−−−	5849	5907	5973	6041	6108	6177	6276	6503	6725	1.052	0.941
VMIN	−−−	−−−	−−−	181	193	205	217	229	242	254	280	304	1.039	0.961
180	3106	3772	4618										1.155	0.878
210	2558	2958	3415	3947	4603	5522							1.119	0.905
240	2329	2601	2925	3292	3727	4218	4777	5478					1.099	0.903
270	2294	2482	2695	2965	3262	3610	3986	4437	4951	5551			1.089	0.911
300	2394	2538	2696	2885	3095	3322	3617	3932	4275	4679	5637		1.073	0.931
330	2581	2687	2805	2954	3119	3297	3498	3723	3967	4262	4948	5794	1.053	0.953
360	2817	2902	3004	3119	3245	3392	3554	3731	3933	4154	4634	5271	1.045	0.975
390	3131	3207	3293	3390	3497	3613	3738	3882	4050	4234	4635	5102	1.030	0.996
420	3514	3581	3656	3738	3828	3928	4037	4156	4293	4438	4780	5171	1.019	1.010
450	4007	4059	4122	4194	4273	4362	4460	4571	4691	4818	5096	5416	1.002	1.029
480	4604	4650	4703	4768	4845	4928	5019	5116	5220	5331	5577	5851	0.990	1.038
510	5357	5395	5439	5488	5542	5609	5685	5767	5855	5948	6152	6395	0.980	1.056
540	6352	6376	6404	6438	6475	6519	6568	6645	6728	6816	7005	7214	0.959	1.316
570	10,098	10,133	10,174	10,219	10,273	10,335	10,403						0.734	1.421
600														
630														
660														
MIL	10,313	10,313	10,312	10,312	10,312	10,311	10,310	10,310	10,309	10,308	10,305	10,297	0.908	0.966
VMAX	572	572	572	572	571	571	571	570	570	569	568	566	1.025	0.960
	MAX ENDURANCE													
KTAS	262	273	285	296	312	322	333	344	353	361	374	392	1.039	0.959
FUEL FLOW	2290	2481	2677	2884	3091	3293	3498	3709	3930	4154	4614	5102	1.054	0.945
	MAX RANGE													
KTAS	344	365	367	369	378	390	397	416	419	429	436	455	1.039	0.959
FUEL FLOW	2689	2944	3063	3184	3383	3611	3804	4110	4278	4527	4916	5474	1.054	0.945

Figure A4-3. (Sheet 28)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 200	**MIL**	––––	––––	5851	5913	5979	6049	6116	6189	6295	6414	6643	6887	1.053	0.941
	VMIN	–––	–––	182	194	206	219	231	244	256	270	295	320	1.039	0.961
	180	3841	4684											1.154	0.874
	210	3024	3484	4031	4687	5627								1.123	0.894
	240	2679	3006	3378	3817	4319	4881	5606						1.101	0.899
	270	2579	2797	3067	3371	3722	4100	4564	5081	5709				1.087	0.909
	300	2668	2831	3020	3228	3458	3757	4075	4426	4840	5274	6471		1.073	0.919
	330	2853	2976	3127	3291	3468	3675	3903	4146	4442	4782	5552	6536	1.053	0.950
	360	3117	3222	3336	3461	3607	3776	3963	4164	4383	4615	5172	5887	1.044	0.976
	390	3477	3563	3659	3766	3888	4019	4167	4340	4523	4717	5158	5668	1.032	0.997
	420	3914	3989	4071	4163	4272	4390	4518	4653	4797	4959	5330	5765	1.016	1.013
	450	4475	4544	4622	4708	4802	4903	5013	5132	5259	5393	5689	6060	0.997	1.029
	480	5187	5241	5304	5381	5464	5554	5651	5755	5865	5985	6252	6554	0.984	1.037
	510	6033	6075	6122	6174	6239	6315	6399	6491	6589	6693	6924	7197	0.981	1.061
	540	7200	7226	7258	7294	7334	7379	7456	7540	7628	7721	7921	8185	0.953	1.066
	570														
	600														
	630														
	660														
	MIL	10,278	10,277	10,276	10,275	10,274	10,272	10,271	10,268	10,265	10,262	10,255	10,248	0.906	0.957
	VMAX	563	563	563	562	562	562	562	561	561	560	559	557	1.026	0.960
		MAX ENDURANCE													
	KTAS	266	278	288	298	313	324	333	341	349	358	373	389	1.039	0.959
	FUEL FLOW	2578	2792	3009	3228	3448	3673	3903	4136	4373	4615	5130	5668	1.054	0.945
		MAX RANGE													
	KTAS	341	355	367	369	374	385	395	406	416	426	434	457	1.039	0.959
	FUEL FLOW	2944	3172	3398	3533	3711	3966	4214	4479	4749	5022	5462	6154	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 250	**MIL**	––––	––––	5854	5919	5987	6057	6127	6201	6318	6440	6679	6932	1.053	0.940
	VMIN	–––	–––	183	195	207	220	233	246	259	273	299	325	1.039	0.961
	180	3908	4769											1.156	0.876
	210	3093	3553	4109	4771	5732								1.121	0.896
	240	2758	3086	3464	3905	4420	4985	5734						1.102	0.902
	270	2681	2898	3170	3481	3834	4220	4691	5215	5867				1.084	0.912
	300	2803	2968	3154	3362	3598	3898	4217	4585	5001	5439	6668		1.069	0.923
	330	3027	3151	3300	3463	3646	3858	4084	4324	4633	4983	5773	6775	1.047	0.955
	360	3337	3440	3554	3678	3835	4009	4196	4394	4613	4850	5419	6158	1.037	0.980
	390	3748	3838	3939	4051	4176	4311	4460	4631	4813	5014	5464	5976	1.025	1.001
	420	4263	4343	4431	4528	4635	4753	4879	5014	5160	5322	5713	6151	1.009	1.016
	450	4924	4991	5069	5153	5246	5346	5454	5574	5704	5844	6153	6526	0.990	1.033
	480	5726	5779	5840	5917	6001	6092	6191	6299	6415	6541	6814	7116	0.983	1.041
	510	6689	6731	6778	6831	6898	6978	7063	7155	7252	7355	7586	7909	0.977	1.064
	540	8048	8075	8110	8150	8195	8247	8343	8448	8559	8677	8929	9206	0.944	1.072
	570														
	600														
	630														
	660														
	MIL	10,238	10,237	10,237	10,236	10,235	10,235	10,234	10,231	10,228	10,226	10,210	10,187	0.909	0.950
	VMAX	555	555	555	555	555	555	555	554	554	553	551	548	1.018	0.959
		MAX ENDURANCE													
	KTAS	260	271	281	291	302	315	323	331	340	350	364	381	1.039	0.959
	FUEL FLOW	2673	2898	3125	3355	3597	3838	4080	4324	4578	4841	5395	5961	1.054	0.945
		MAX RANGE													
	KTAS	331	343	354	361	369	380	391	402	412	426	430	444	1.039	0.959
	FUEL FLOW	3033	3269	3495	3686	3909	4189	4473	4760	5052	5394	5828	6439	1.054	0.945

Figure A4-3. (Sheet 29)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW−1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 300	MIL		−−−−	5857	5924	5994	6065	6138	6220	6343	6467	6716	6993	1.053	0.940
	VMIN		−−−	184	196	209	221	235	248	262	276	303	331	1.039	0.961
	180		4864											1.173	0.863
	210		3622	4187	4854	5837								1.131	0.890
	240		3170	3550	3996	4520	5096	5862						1.104	0.898
	270		3000	3275	3592	3945	4343	4818	5361	6025				1.090	0.911
	300		3104	3289	3502	3738	4039	4361	4745	5162	5620			1.066	0.928
	330		3325	3474	3642	3830	4040	4265	4508	4828	5183	6000		1.042	0.960
	360		3660	3780	3914	4070	4243	4428	4627	4850	5101	5667	6443	1.034	0.981
	390		4128	4232	4347	4471	4605	4752	4926	5118	5322	5777	6301	1.021	1.002
	420		4711	4798	4893	5000	5118	5245	5381	5533	5707	6103	6546	1.006	1.019
	450		5439	5515	5601	5695	5797	5912	6038	6172	6314	6622	7004	0.991	1.034
	480		6328	6391	6471	6558	6653	6754	6863	6978	7104	7395	7754	0.981	1.040
	510		7401	7446	7497	7563	7642	7742	7856	7977	8106	8395	8741	0.975	1.087
	540		9114	9143	9179	9219	9265	9361	9467	9579	9696			0.927	1.103
	570														
	600														
	630														
	660														
	MIL		10,177	10,176	10,174	10,172	10,170	10,165	10,157	10,149	10,140	10,115	10,030	0.915	0.946
	VMAX		547	546	546	546	546	545	544	543	542	538	532	1.008	0.958
	MAX ENDURANCE														
	KTAS		269	279	290	300	310	319	329	338	346	363	379	1.039	0.959
	FUEL FLOW		2999	3237	3484	3738	3992	4245	4507	4781	5066	5649	6266	1.054	0.945
	MAX RANGE														
	KTAS		334	345	356	368	373	383	388	403	409	427	430	1.039	0.959
	FUEL FLOW		3363	3607	3867	4158	4380	4667	4903	5275	5553	6195	6664	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

	KTAS \ GW−1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 350	MIL			5860	5930	6002	6072	6149	6238	6369	6494	6757	7072	1.053	0.940
	VMIN			185	197	210	223	237	250	265	279	308	339	1.039	0.961
	180														
	210			4264	4959									1.135	0.892
	240			3636	4095	4621	5222	5989						1.103	0.899
	270			3382	3702	4057	4468	4945	5513	6183				1.097	0.909
	300			3427	3644	3878	4180	4519	4904	5323	5811			1.069	0.925
	330			3655	3828	4014	4222	4446	4700	5027	5383	6235		1.044	0.962
	360			4019	4151	4305	4477	4663	4867	5103	5353	5920	6728	1.035	0.985
	390			4529	4643	4767	4901	5056	5236	5430	5638	6092	6637	1.020	1.002
	420			5168	5263	5369	5492	5628	5774	5928	6100	6500	6976	1.004	1.021
	450			5982	6070	6166	6270	6384	6509	6642	6787	7121	7557	0.989	1.033
	480			6956	7036	7123	7223	7332	7449	7586	7740	8075	8445	0.979	1.054
	510			8228	8289	8371	8469	8575	8688	8809	8938	9225		0.962	1.057
	540														
	570														
	600														
	630														
	660														
	MIL			10,073	10,064	10,052	10,035	10,007	9977	9945	9911	9795	9550	0.931	0.943
	VMAX			535	535	534	533	531	529	527	525	518	505	1.003	0.957
	MAX ENDURANCE														
	KTAS			279	290	300	310	319	328	337	346	363	379	1.039	0.959
	FUEL FLOW			3350	3612	3877	4144	4409	4696	4990	5290	5906	6580	1.054	0.945
	MAX RANGE														
	KTAS			342	352	362	369	374	380	390	399	419	428	1.039	0.959
	FUEL FLOW			3780	4049	4326	4575	4816	5097	5434	5763	6477	7109	1.054	0.945

Figure A4-3. (Sheet 30)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL			5866	5936	6009	6082	6160	6264	6397	6528	6802	7167	1.053	0.940
VMIN			186	198	211	225	239	253	268	282	312	348	1.039	0.962
180														
210			4342	5069									1.139	0.893
240			3722	4193	4721	5348	6116						1.101	0.901
270			3491	3812	4173	4593	5071	5668	6341				1.094	0.912
300			3570	3785	4018	4322	4677	5063	5488	6003			1.066	0.928
330			3842	4013	4198	4404	4639	4897	5225	5583	6470		1.041	0.966
360			4257	4388	4541	4714	4907	5122	5356	5604	6192	7012	1.030	0.988
390			4827	4944	5075	5215	5369	5553	5749	5956	6432	6986	1.016	1.006
420			5550	5652	5765	5890	6025	6170	6327	6501	6928	7415	1.000	1.022
450			6459	6546	6641	6745	6863	6993	7148	7315	7677	8109	0.986	1.045
480			7562	7660	7766	7881	8005	8137	8278	8432	8766		0.968	1.058
510			9068	9126	9205	9303	9408						0.948	1.062
540														
570														
600														
630														
660														
MIL			9810	9788	9758	9712	9660	9601	9533	9443	9211	8928	0.946	0.941
VMAX			519	518	516	514	511	508	504	500	487	471	1.001	0.956
MAX ENDURANCE														
KTAS			279	289	299	309	319	328	337	346	363	379	1.039	0.959
FUEL FLOW			3466	3740	4016	4295	4586	4890	5200	5514	6180	6899	1.054	0.945
MAX RANGE														
KTAS			334	343	353	366	368	373	381	390	403	419	1.039	0.959
FUEL FLOW			3882	4164	4453	4785	5011	5280	5617	5960	6625	7399	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure A4-3. (Sheet 31)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	4816	4888	4958	5029	5098	5191	5287					1.065	0.936
VMIN	−−−	181	195	209	223	237	251	265					1.039	0.959
180	3556												1.194	0.841
210	2572	3083	3739	4707									1.169	0.868
240	2148	2490	2901	3380	3961	4756							1.127	0.878
270	1939	2175	2454	2779	3168	3620	4175	4878					1.124	0.889
300	1879	2049	2240	2473	2748	3061	3426	3816					1.092	0.903
330	1913	2052	2205	2377	2582	2803	3073	3384					1.062	0.923
360	2011	2120	2239	2384	2550	2731	2933	3160					1.047	0.937
390	2135	2224	2322	2430	2550	2705	2871	3049					1.046	0.964
420	2285	2358	2439	2529	2629	2750	2879	3029					1.043	0.988
450	2493	2555	2624	2699	2784	2889	3002	3123					1.031	1.003
480	2748	2800	2858	2922	2999	3089	3186	3291					1.021	1.030
510	3110	3149	3195	3259	3330	3406	3488	3576					0.997	1.059
540	3687	3726	3768	3815	3874	3944	4019	4099					0.953	1.264
570	5281	5329	5388	5453	5523	5599	5696	5799					0.812	1.379
600	8121	8180	8245	8323	8416	8517	8626	8748					0.768	1.363
630														
660														
MIL	9748	9736	9723	9708	9691	9670	9648	9625					0.863	0.949
VMAX	626	625	624	622	621	619	617	615					1.004	0.957
MAX ENDURANCE														
KTAS	301	310	324	340	376	390	403	416					1.041	0.957
FUEL FLOW	1879	2040	2204	2370	2543	2705	2866	3028					1.056	0.942
MAX RANGE														
KTAS	421	421	424	441	451	461	475	481					1.041	0.957
FUEL FLOW	2291	2365	2461	2642	2793	2954	3153	3301					1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	−−−−	4820	4893	4964	5037	5108	5205	5304	5404	5500	5593		1.061	0.936
VMIN	−−−	182	197	210	225	239	253	267	282	295	309		1.039	0.960
180	3618												1.189	0.841
210	2626	3144	3815										1.139	0.878
240	2214	2557	2977	3459	4055	4879							1.124	0.881
270	2016	2254	2539	2870	3264	3722	4292	5023					1.119	0.893
300	1981	2149	2341	2581	2857	3182	3549	3951	4486	5124			1.102	0.908
330	2045	2183	2335	2516	2720	2940	3224	3536	3869	4277	4712		1.079	0.926
360	2179	2287	2405	2559	2726	2906	3115	3350	3599	3895	4231		1.050	0.937
390	2337	2425	2524	2641	2771	2924	3090	3281	3490	3717	3956		1.046	0.960
420	2523	2595	2686	2788	2899	3018	3147	3303	3483	3673	3874		1.038	0.988
450	2780	2852	2931	3019	3114	3219	3331	3455	3596	3751	3927		1.025	1.004
480	3111	3171	3240	3315	3398	3488	3585	3694	3818	3949	4088		1.013	1.027
510	3577	3621	3670	3734	3803	3879	3963	4058	4161	4279	4405		0.994	1.067
540	4335	4369	4407	4453	4515	4592	4674	4761	4854	4952	5056		0.940	1.312
570	6564	6610	6666	6735	6810	6891	6995	7106	7224	7349	7481		0.781	1.388
600														
630														
660														
MIL	9286	9275	9262	9246	9229	9210	9189	9164	9137	9109	9079		0.919	0.939
VMAX	592	592	591	590	590	589	588	587	585	584	583		1.027	0.956
MAX ENDURANCE														
KTAS	294	305	318	333	345	357	382	395	406	417	421		1.041	0.957
FUEL FLOW	1978	2148	2325	2515	2710	2906	3087	3280	3476	3673	3874		1.056	0.942
MAX RANGE														
KTAS	397	421	421	421	429	442	451	458	473	481	482		1.041	0.957
FUEL FLOW	2379	2603	2694	2796	2956	3158	3342	3512	3758	3960	4100		1.056	0.942

Figure A4-3. (Sheet 32)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	4825	4899	4971	5044	5119	5220	5323	5424	5521	5714	5907	1.051	0.936
VMIN	–––	183	198	212	226	241	255	270	284	298	327	355	1.042	0.960
180	3680												1.185	0.840
210	2686	3205	3891										1.136	0.880
240	2279	2624	3053	3537	4149								1.120	0.884
270	2092	2337	2625	2965	3361	3834	4410						1.107	0.899
300	2082	2249	2449	2688	2971	3303	3672	4092	4632	5298			1.096	0.912
330	2177	2313	2473	2655	2858	3087	3374	3688	4033	4450	5488		1.074	0.931
360	2347	2456	2583	2737	2903	3087	3306	3539	3786	4091	4804	5751	1.048	0.938
390	2542	2637	2745	2863	2991	3146	3326	3520	3727	3951	4469	5145	1.043	0.962
420	2785	2867	2957	3058	3168	3295	3436	3598	3776	3965	4398	4897	1.036	0.992
450	3114	3185	3263	3350	3447	3561	3684	3816	3956	4110	4476	4904	1.019	1.008
480	3511	3570	3639	3720	3811	3909	4016	4131	4255	4386	4672	5042	1.008	1.029
510	4067	4113	4165	4235	4311	4393	4482	4577	4679	4798	5059	5369	0.987	1.074
540	5047	5078	5114	5155	5213	5289	5370	5456	5548	5645	5901	6232	0.925	1.362
570	7995	8056	8132	8217	8309	8410	8538	8676					0.746	1.452
600														
630														
660														
MIL	8943	8934	8923	8910	8896	8881	8863	8841	8816	8790	8733	8662	0.954	0.939
VMAX	576	576	575	575	574	573	572	571	570	569	566	563	1.031	0.957
MAX ENDURANCE														
KTAS	289	301	308	320	332	345	371	382	392	402	421	433	1.041	0.957
FUEL FLOW	2073	2249	2445	2651	2858	3074	3300	3513	3727	3943	4398	4886	1.056	0.942
MAX RANGE														
KTAS	377	389	404	418	421	421	433	445	451	461	481	494	1.041	0.957
FUEL FLOW	2452	2631	2836	3046	3178	3304	3532	3771	3968	4200	4686	5160	1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
MIL	––––	4830	4904	4978	5051	5132	5235	5342	5444	5547	5743	5959	1.049	0.936
VMIN	–––	184	199	213	227	243	257	273	287	302	331	363	1.042	0.960
180	3741												1.190	0.839
210	2745	3266	3967										1.134	0.882
240	2344	2691	3129	3619	4242								1.117	0.887
270	2169	2421	2710	3060	3457	3948	4540						1.103	0.903
300	2183	2353	2558	2796	3091	3424	3794	4233	4802				1.087	0.919
330	2309	2451	2614	2795	3000	3238	3525	3840	4205	4623			1.058	0.941
360	2523	2637	2762	2914	3085	3281	3497	3729	3974	4298	5032		1.038	0.950
390	2766	2861	2968	3085	3221	3387	3567	3759	3965	4197	4719	5435	1.035	0.968
420	3059	3140	3230	3341	3461	3592	3732	3893	4069	4268	4709	5207	1.027	0.997
450	3450	3527	3612	3706	3809	3923	4045	4176	4316	4474	4860	5286	1.011	1.013
480	3937	3999	4075	4158	4248	4347	4453	4569	4693	4831	5137	5510	0.998	1.032
510	4594	4638	4687	4756	4832	4913	5001	5097	5205	5338	5626	5944	0.982	1.085
540	5774	5802	5836	5875	5937	6021	6111	6207	6310	6418	6684	7042	0.913	1.112
570														
600														
630														
660														
MIL	8672	8665	8655	8644	8632	8618	8600	8581	8561	8540	8495	8426	0.971	0.939
VMAX	563	563	562	562	561	560	560	559	558	557	554	551	1.033	0.956
MAX ENDURANCE														
KTAS	281	297	301	310	322	333	343	353	378	389	407	421	1.041	0.957
FUEL FLOW	2162	2352	2557	2773	2996	3237	3480	3726	3955	4197	4697	5205	1.056	0.942
MAX RANGE														
KTAS	342	373	387	399	407	421	421	428	444	451	477	482	1.041	0.957
FUEL FLOW	2389	2728	2947	3155	3351	3596	3743	3951	4252	4487	5096	5525	1.056	0.942

Figure A4-3. (Sheet 33)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST | **CONDITIONS:** | **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−35°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	4835	4909	4985	5060	5146	5253	5362	5467	5574	5676	5899	6158	1.042	0.936
VMIN	185	200	214	229	245	260	275	290	306	321	354	391	1.044	0.960
180														
210	3327	4043											1.167	0.867
240	2761	3204	3710	4340									1.119	0.889
270	2505	2796	3155	3553	4063	4680							1.109	0.904
300	2463	2666	2904	3211	3545	3926	4375	4972					1.085	0.921
330	2594	2756	2935	3152	3388	3676	4000	4377	4803	5318			1.065	0.938
360	2817	2942	3099	3280	3474	3689	3918	4177	4504	4856	5746		1.035	0.950
390	3085	3198	3325	3464	3629	3807	3998	4214	4452	4704	5325		1.029	0.972
420	3433	3530	3640	3759	3889	4028	4193	4382	4584	4796	5271	5851	1.028	0.997
450	3892	3977	4070	4172	4285	4407	4548	4697	4860	5047	5452	5972	1.010	1.015
480	4437	4512	4595	4686	4789	4902	5026	5159	5300	5449	5786	6258	0.998	1.033
510	5167	5219	5294	5376	5465	5561	5664	5774	5908	6049	6379	6783	0.979	1.091
540	6607	6635	6667	6725	6809	6900	7005	7128	7259	7397	7790		0.900	1.125
570														
600														
630														
660														
MIL	8462	8455	8447	8438	8425	8411	8395	8378	8359	8339	8283	8184	0.984	0.939
VMAX	553	552	552	552	551	550	549	549	548	547	544	538	1.034	0.957
MAX ENDURANCE														
KTAS	288	300	305	316	327	338	349	368	377	386	407	421	1.041	0.957
FUEL FLOW	2454	2666	2887	3134	3387	3642	3900	4175	4439	4703	5254	5850	1.056	0.942
MAX RANGE														
KTAS	345	374	381	393	406	418	424	437	449	452	482	482	1.041	0.957
FUEL FLOW	2689	3047	3242	3493	3751	4004	4225	4545	4850	5063	5804	6277	1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	4840	4915	4992	5070	5161	5272	5382	5493	5602	5708	5961	6278	1.040	0.936
VMIN	186	201	216	231	247	263	278	294	310	326	363	408	1.045	0.960
180														
210	3388	4119											1.164	0.866
240	2833	3280	3801	4455									1.121	0.891
270	2589	2886	3250	3649	4177	4821							1.106	0.907
300	2572	2774	3021	3331	3667	4066	4516	5141					1.083	0.925
330	2736	2897	3085	3304	3539	3827	4170	4549	5006	5523			1.064	0.944
360	2998	3131	3295	3474	3667	3880	4118	4384	4711	5090			1.027	0.960
390	3328	3443	3570	3708	3871	4048	4253	4473	4708	4957	5613		1.027	0.980
420	3735	3831	3939	4057	4191	4340	4511	4699	4899	5111	5623	6193	1.022	1.002
450	4258	4342	4436	4545	4665	4796	4935	5084	5246	5433	5898	6416	1.004	1.019
480	4885	4966	5055	5152	5257	5371	5495	5628	5770	5941	6344	6821	0.992	1.036
510	5743	5793	5866	5948	6036	6132	6236	6364	6525	6697	7068	7475	0.973	1.115
540	7518	7544	7575	7640	7740	7846	7960	8082					0.878	1.158
570														
600														
630														
660														
MIL	8305	8301	8297	8290	8278	8264	8250	8228	8195	8156	8036	7756	0.992	0.940
VMAX	545	545	545	544	544	543	542	541	539	536	529	514	1.030	0.957
MAX ENDURANCE														
KTAS	281	294	305	316	327	338	348	358	370	379	397	414	1.041	0.957
FUEL FLOW	2549	2771	3006	3269	3534	3802	4082	4381	4663	4940	5563	6188	1.056	0.942
MAX RANGE														
KTAS	344	353	374	387	403	411	421	424	435	451	454	468	1.041	0.957
FUEL FLOW	2843	3067	3402	3678	3988	4243	4524	4736	5054	5450	5946	6647	1.056	0.942

Figure A4-3. (Sheet 34)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL		4921	4999	5080	5175	5292	5404	5521	5632	5757	6052		1.039	0.936
VMIN		202	217	233	249	266	282	298	315	333	376		1.045	0.960
180														
210		4195											1.201	0.864
240		3355	3892	4568									1.128	0.883
270		2980	3345	3750	4291	4961							1.119	0.905
300		2883	3139	3451	3788	4206	4664	5310					1.090	0.925
330		3045	3240	3457	3690	3983	4341	4720	5209				1.063	0.949
360		3328	3491	3669	3861	4078	4327	4591	4920	5333			1.031	0.961
390		3689	3815	3951	4117	4309	4514	4732	4964	5239	5900		1.024	0.982
420		4132	4247	4374	4512	4661	4829	5016	5224	5465	5975		1.016	1.007
450		4729	4827	4934	5055	5184	5324	5474	5663	5879	6347		0.999	1.025
480		5435	5523	5621	5727	5847	5996	6156	6325	6505	6907		0.986	1.049
510		6392	6479	6576	6681	6795	6917	7047	7209	7383			0.963	1.055
540														
570														
600														
630														
660														
MIL		8142	8135	8118	8094	8068	8034	7982	7905	7800	7418		0.999	0.938
VMAX		535	535	534	532	531	529	526	522	516	496		1.025	0.956
MAX ENDURANCE														
KTAS		292	304	316	327	338	348	358	368	378	397		1.041	0.957
FUEL FLOW		2872	3129	3403	3681	3964	4273	4584	4881	5203	5862		1.056	0.942
MAX RANGE														
KTAS		343	370	382	388	401	413	421	421	430	446		1.041	0.957
FUEL FLOW		3153	3587	3870	4097	4420	4744	5031	5240	5582	6282		1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			5006	5090	5194	5313	5431	5551	5672	5815			1.031	0.936
VMIN			219	235	251	268	285	303	320	342			1.049	0.961
180														
210														
240			3983	4682									1.155	0.882
270			3440	3859	4406	5101							1.117	0.896
300			3258	3571	3917	4346	4831						1.087	0.927
330			3394	3609	3841	4152	4512	4915	5412				1.062	0.942
360			3688	3864	4059	4289	4536	4798	5161	5575			1.028	0.964
390			4060	4207	4381	4572	4775	4994	5251	5531			1.019	0.987
420			4570	4697	4833	4981	5148	5360	5586	5825			1.011	1.015
450			5218	5325	5445	5593	5755	5928	6115	6330			0.993	1.035
480			6030	6147	6274	6411	6560	6720	6889	7069			0.978	1.050
510			7166	7262	7367	7479							0.951	1.057
540														
570														
600														
630														
660														
MIL			7879	7833	7783	7728	7635	7504	7362	7199			1.001	0.934
VMAX			520	518	515	512	507	501	492	481			1.019	0.953
MAX ENDURANCE														
KTAS			304	316	327	337	348	358	368	377			1.041	0.957
FUEL FLOW			3251	3537	3827	4139	4463	4788	5124	5470			1.056	0.942
MAX RANGE														
KTAS			348	373	379	391	403	407	419	421			1.041	0.957
FUEL FLOW			3554	3996	4250	4586	4923	5176	5572	5842			1.056	0.942

Figure A4-3. (Sheet 35)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			5014	5100	5213	5334	5459	5581	5727	5894			1.036	0.936
VMIN			220	237	254	271	289	307	329	353			1.048	0.961
180														
210														
240			4074	4795									1.154	0.881
270			3534	3970	4533								1.112	0.908
300			3376	3691	4055	4486	4998						1.082	0.929
330			3548	3762	3999	4321	4682	5116	5615				1.057	0.947
360			3884	4064	4272	4500	4745	5021	5402	5818			1.023	0.970
390			4326	4472	4645	4834	5042	5286	5547	5824			1.014	0.995
420			4894	5019	5156	5323	5513	5724	5947	6184			1.005	1.021
450			5635	5758	5897	6048	6210	6382	6568				0.985	1.039
480			6594	6711	6838	6974							0.967	1.045
510														
540														
570														
600														
630														
660														
MIL			7477	7410	7345	7261	7153	7020	6855	6587			1.011	0.932
VMAX			499	496	491	485	478	469	458	438			1.021	0.952
MAX ENDURANCE														
KTAS			304	315	326	337	347	358	367	377			1.041	0.957
FUEL FLOW			3373	3671	3979	4316	4653	5006	5375	5737			1.056	0.942
MAX RANGE														
KTAS			340	353	371	383	389	398	410	421			1.041	0.957
FUEL FLOW			3650	3971	4393	4744	5035	5393	5802	6203			1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure A4-3. (Sheet 36)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	3863	3932	4000	4086	4174	4261	4348	4448					1.064	0.932
VMIN	199	216	232	250	267	284	300	316					1.041	0.958
180														
210	3014												1.195	0.845
240	2313	2779	3403										1.157	0.868
270	1954	2271	2666	3145	3810								1.137	0.875
300	1787	2019	2289	2623	2988	3488							1.115	0.898
330	1771	1937	2151	2393	2692	3017	3406	3856					1.094	0.902
360	1809	1946	2113	2316	2540	2787	3086	3406					1.070	0.923
390	1905	2011	2134	2294	2476	2673	2898	3148					1.067	0.947
420	2031	2121	2221	2336	2481	2648	2827	3028					1.060	0.967
450	2181	2257	2341	2439	2557	2687	2834	3000					1.036	0.983
480	2385	2449	2524	2613	2715	2827	2948	3077					1.005	1.021
510	2701	2763	2833	2908	2991	3081	3191	3317					0.975	1.094
540	3384	3434	3503	3586	3676	3772	3875	3987					0.881	1.303
570	5090	5163	5246	5345	5463	5593	5732	5880					0.758	1.377
600	6887	6977	7093										0.856	1.298
630														
660														
MIL	7457	7415	7362	7303	7235	7148	7102	7067					0.989	0.936
VMAX	607	605	602	599	595	590	588	585					1.029	0.954
MAX ENDURANCE														
KTAS	322	338	364	384	400	418	432	442					1.043	0.955
FUEL FLOW	1767	1931	2113	2293	2472	2648	2822	2998					1.059	0.940
MAX RANGE														
KTAS	433	442	458	471	471	471	471	486					1.043	0.955
FUEL FLOW	2091	2215	2381	2540	2648	2765	2892	3115					1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
MIL	3867	3937	4007	4097	4188	4275	4370	4472	4569	4670	4800		1.066	0.933
VMIN	200	217	234	252	270	287	303	319	335	351	368		1.041	0.958
180														
210	3075												1.200	0.848
240	2374	2848	3501										1.156	0.869
270	2022	2348	2744	3239									1.133	0.887
300	1873	2106	2386	2722	3099	3609							1.109	0.903
330	1874	2056	2269	2516	2818	3144	3552	4022					1.088	0.907
360	1941	2090	2271	2472	2697	2946	3246	3587	3978	4457			1.077	0.920
390	2070	2182	2320	2486	2666	2867	3099	3345	3624	3968	4349		1.070	0.942
420	2231	2326	2442	2569	2713	2879	3071	3280	3508	3751	4030		1.061	0.959
450	2424	2512	2611	2722	2841	2971	3121	3302	3495	3699	3919		1.044	0.981
480	2699	2774	2858	2950	3052	3168	3297	3438	3592	3770	3958		1.008	1.019
510	3102	3166	3242	3325	3415	3513	3629	3757	3892	4037	4203		0.975	1.108
540	4045	4096	4166	4246	4333	4428	4536	4660	4814	4976	5146		0.863	1.373
570	6439	6529	6628	6752	6901								0.720	1.459
600														
630														
660														
MIL	6923	6909	6893	6874	6852	6828	6803	6776	6748	6715	6675		1.008	0.935
VMAX	576	575	573	572	571	569	567	566	564	561	559		1.038	0.954
MAX ENDURANCE														
KTAS	316	332	343	368	382	400	413	426	438	447	460		1.043	0.955
FUEL FLOW	1863	2056	2263	2467	2664	2861	3069	3278	3487	3699	3910		1.059	0.940
MAX RANGE														
KTAS	396	425	441	447	464	471	471	471	482	495	501		1.043	0.955
FUEL FLOW	2102	2351	2550	2701	2926	3089	3218	3364	3609	3876	4095		1.059	0.940

Figure A4-3. (Sheet 37)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

GW−1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	3871	3943	4016	4108	4202	4290	4393	4497	4600	4720	5008	5361	1.066	0.931
VMIN	201	218	236	254	272	290	307	323	340	358	393	430	1.040	0.958
180														
210	3136												1.204	0.850
240	2435	2921	3600										1.152	0.869
270	2090	2424	2822	3333									1.129	0.892
300	1960	2193	2483	2820	3213	3746							1.104	0.908
330	1988	2176	2387	2640	2945	3279	3699	4192					1.082	0.914
360	2085	2248	2428	2629	2858	3106	3406	3768	4175	4667			1.070	0.928
390	2250	2373	2513	2678	2861	3071	3299	3547	3836	4193			1.057	0.955
420	2456	2560	2675	2802	2949	3129	3324	3531	3756	4017	4627		1.050	0.967
450	2708	2797	2896	3006	3131	3271	3429	3610	3802	4009	4507	5129	1.040	0.985
480	3037	3112	3200	3299	3410	3532	3664	3805	3959	4137	4564	5073	1.002	1.020
510	3537	3604	3679	3762	3852	3950	4072	4211	4360	4517	4882	5395	0.970	1.127
540	4747	4800	4875	4963	5057	5159	5269	5391	5562	5771	6219		0.839	1.198
570														
600														
630														
660														
MIL	6698	6686	6671	6651	6630	6607	6582	6556	6523	6484	6403	6299	1.014	0.933
VMAX	560	560	559	557	556	554	553	551	549	547	541	534	1.039	0.954
MAX ENDURANCE														
KTAS	304	315	328	341	375	387	398	409	421	441	462	471	1.043	0.955
FUEL FLOW	1960	2168	2387	2623	2847	3070	3296	3525	3756	3997	4502	5050	1.059	0.940
MAX RANGE														
KTAS	381	402	420	434	442	456	471	471	472	483	501	501	1.043	0.955
FUEL FLOW	2193	2441	2673	2892	3071	3312	3569	3715	3887	4163	4744	5233	1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 150

GW−1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	3877	3949	4026	4121	4216	4309	4418	4523	4641	4782	5108	5589	1.066	0.931
VMIN	202	220	238	257	275	293	311	328	347	365	405	450	1.040	0.958
180														
210	3197												1.160	0.852
240	2496	2995	3698										1.149	0.869
270	2157	2500	2902	3427									1.126	0.895
300	2048	2280	2581	2918	3328	3883							1.100	0.913
330	2109	2296	2510	2765	3071	3423	3854	4363					1.077	0.921
360	2245	2407	2586	2791	3019	3265	3584	3950	4380				1.053	0.938
390	2445	2568	2707	2876	3067	3275	3502	3757	4055	4426			1.048	0.962
420	2691	2795	2910	3047	3203	3383	3576	3784	4027	4288	4934		1.040	0.975
450	2994	3085	3191	3310	3440	3581	3738	3918	4121	4345	4864		1.024	0.996
480	3394	3476	3566	3665	3777	3899	4031	4175	4346	4543	4978	5569	0.999	1.028
510	3974	4044	4124	4214	4312	4418	4547	4689	4839	5003	5462		0.960	1.153
540	5507	5560	5649	5754	5869	5992	6125						0.807	1.236
570														
600														
630														
660														
MIL	6507	6496	6484	6468	6451	6433	6414	6392	6360	6326	6252	6043	1.020	0.933
VMAX	548	547	546	545	544	543	542	540	538	536	531	507	1.040	0.954
MAX ENDURANCE														
KTAS	295	307	321	334	361	372	384	399	409	418	442	460	1.043	0.955
FUEL FLOW	2045	2263	2503	2755	3019	3257	3500	3752	4018	4287	4859	5515	1.059	0.940
MAX RANGE														
KTAS	366	387	408	414	430	443	456	471	471	472	483	487	1.043	0.955
FUEL FLOW	2282	2548	2823	3005	3266	3518	3783	4066	4250	4456	5008	5629	1.059	0.940

Figure A4-3. (Sheet 38)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	3954	4037	4135	4231	4331	4443	4562	4691	4858	5042	5700		1.066	0.929
VMIN	221	240	259	278	297	315	334	354	375	397	460		1.040	0.958
180														
210														
240	3068												1.146	0.870
270	2577	2989	3531										1.135	0.887
300	2376	2678	3017	3443	4020								1.105	0.912
330	2417	2637	2890	3200	3568	4017							1.072	0.927
360	2566	2749	2955	3181	3427	3764	4143	4588					1.058	0.942
390	2764	2908	3083	3273	3479	3713	3979	4282	4679				1.045	0.965
420	3041	3167	3304	3459	3638	3835	4061	4302	4571	4883			1.038	0.979
450	3395	3502	3621	3750	3890	4054	4250	4460	4685	4958			1.024	1.002
480	3843	3933	4032	4144	4279	4426	4583	4754	4952	5206	5755		0.997	1.034
510	4517	4599	4689	4786	4892	5035	5212	5400	5598	5811			0.956	1.055
540														
570														
600														
630														
660														
MIL	6363	6352	6339	6324	6308	6291	6267	6229	6169	6098	5967		1.025	0.934
VMAX	538	538	537	536	535	533	532	528	523	516	487		1.040	0.954
MAX ENDURANCE														
KTAS	307	320	333	346	363	376	386	399	411	417	460		1.043	0.955
FUEL FLOW	2361	2618	2884	3157	3426	3699	3978	4263	4560	4883	5616		1.059	0.940
MAX RANGE														
KTAS	379	395	410	424	438	451	463	471	472	471	483		1.043	0.955
FUEL FLOW	2677	2940	3214	3492	3774	4059	4361	4641	4848	5099	5790		1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	3962	4047	4149	4248	4355	4473	4608	4763	4963	5190			1.066	0.930
VMIN	223	242	262	281	301	320	341	363	387	414			1.040	0.959
180														
210														
240	3142												1.143	0.873
270	2653	3080	3646										1.131	0.887
300	2472	2775	3129	3558									1.093	0.922
330	2542	2763	3015	3337	3714	4186							1.070	0.932
360	2730	2914	3118	3343	3605	3944	4346						1.041	0.952
390	2969	3116	3290	3480	3694	3938	4205	4520	4932				1.040	0.972
420	3300	3424	3561	3715	3903	4114	4340	4592	4883	5194			1.031	0.986
450	3706	3812	3931	4068	4222	4393	4590	4817	5078	5359			1.014	1.008
480	4217	4317	4427	4550	4687	4834	5001	5209	5448	5702			0.989	1.048
510	4997	5099	5210	5330	5461	5624	5803						0.933	1.078
540														
570														
600														
630														
660														
MIL	6262	6251	6232	6208	6181	6146	6092	6054	6012	5971			1.030	0.933
VMAX	531	531	529	527	524	520	515	508	501	488			1.038	0.953
MAX ENDURANCE														
KTAS	307	320	333	346	358	371	382	393	403	415			1.043	0.955
FUEL FLOW	2462	2733	3012	3301	3604	3895	4194	4507	4839	5179			1.059	0.940
MAX RANGE														
KTAS	375	389	403	415	426	442	446	458	464	471			1.043	0.955
FUEL FLOW	2830	3107	3389	3668	3959	4304	4546	4896	5223	5569			1.059	0.940

Figure A4-3. (Sheet 39)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL		4058	4164	4268	4381	4516	4662	4868	5143				1.065	0.930
VMIN		245	265	285	305	327	350	376	409				1.039	0.960
180														
210														
240														
270		3170	3761										1.149	0.880
300		2872	3243	3688									1.097	0.916
330		2889	3140	3481	3868	4355							1.074	0.925
360		3080	3282	3516	3785	4134	4553						1.050	0.954
390		3325	3499	3696	3921	4166	4441	4771					1.034	0.978
420		3682	3822	3989	4185	4394	4638	4910	5199				1.022	0.991
450		4137	4267	4410	4563	4743	4969	5218	5481				1.009	1.019
480		4724	4834	4961	5127	5306	5497	5705					0.983	1.061
510		5687	5798	5918									0.925	1.089
540														
570														
600														
630														
660														
MIL		6113	6087	6068	6046	6016	5991	5965	5731				1.023	0.951
VMAX		517	514	511	507	502	495	486	462				1.035	0.957
MAX ENDURANCE														
KTAS		320	332	346	358	370	381	392	409				1.043	0.955
FUEL FLOW		2847	3140	3456	3781	4089	4418	4763	5135				1.059	0.940
MAX RANGE														
KTAS		378	388	402	414	426	436	442	449				1.043	0.955
FUEL FLOW		3219	3485	3799	4127	4457	4797	5118	5467				1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			4179	4288	4413	4566	4754	5068					1.065	0.929
VMIN			268	289	310	335	362	400					1.038	0.961
180														
210														
240														
270			3875										1.145	0.868
300			3356	3822									1.114	0.915
330			3271	3625	4031								1.070	0.929
360			3451	3697	3965	4336							1.045	0.959
390			3717	3926	4152	4403	4695						1.028	0.983
420			4105	4273	4469	4703	4962	5231					1.019	1.000
450			4610	4763	4940	5142	5374						0.998	1.029
480			5306	5456	5622								0.970	1.044
510														
540														
570														
600														
630														
660														
MIL			6002	5989	5970	5916	5801	5258					0.997	0.940
VMAX			498	494	488	480	468	421					1.018	0.953
MAX ENDURANCE														
KTAS			329	341	358	369	381	400					1.043	0.955
FUEL FLOW			3271	3615	3958	4299	4654	5061					1.059	0.940
MAX RANGE														
KTAS			381	392	408	415	425	420					1.043	0.955
FUEL FLOW			3628	3949	4334	4644	5015	5234					1.059	0.940

Figure A4-3. (Sheet 40)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			4197	4310	4458	4632	4899						1.065	0.930
VMIN			272	293	317	345	380						1.038	0.961
180														
210														
240														
270														
300			3469	3957									1.111	0.914
330			3412	3772	4198								1.068	0.933
360			3634	3880	4158	4540							1.042	0.966
390			3950	4159	4393	4661	4950						1.024	0.991
420			4390	4569	4789	5030							1.007	1.014
450			4996	5165	5347								0.983	1.027
480														
510														
540														
570														
600														
630														
660														
MIL			5916	5860	5738	5548	5128						0.989	0.925
VMAX			480	473	463	447	407						1.012	0.948
MAX ENDURANCE														
KTAS			324	336	357	369	380						1.043	0.955
FUEL FLOW			3410	3768	4146	4513	4889						1.059	0.940
MAX RANGE														
KTAS			371	384	393	400	407						1.043	0.955
FUEL FLOW			3732	4089	4429	4772	5116						1.059	0.940

*TEMPERATURE DEVIATION FROM STANDARD DAY.

Figure A4-3. (Sheet 41)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW−1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	3206	3292	3378	3470	3569	3663	3776	3903					1.065	0.934
VMIN	238	259	280	299	319	337	357	376					1.043	0.955
180														
210														
240	2946												1.179	0.826
270	2235	2767											1.168	0.852
300	1926	2258	2684	3285									1.151	0.877
330	1786	2036	2335	2703	3150								1.119	0.890
360	1748	1933	2161	2432	2757	3133	3611						1.109	0.901
390	1752	1908	2082	2305	2552	2835	3168	3560					1.090	0.915
420	1815	1936	2082	2253	2456	2682	2929	3221					1.087	0.939
450	1926	2031	2147	2276	2440	2624	2822	3048					1.070	0.970
480	2101	2189	2291	2405	2530	2679	2853	3040					1.028	1.009
510	2395	2474	2560	2663	2783	2919	3067	3236					0.989	1.161
540	3177	3269	3371	3482	3603	3743	3893	4063					0.838	1.397
570	4993	5117	5264	5428	5634								0.717	1.458
600														
630														
660														
MIL	5912	5858	5786	5713	5675	5635	5589	5538					0.996	0.929
VMAX	591	587	581	576	573	570	566	562					1.038	0.952
MAX ENDURANCE														
KTAS	372	389	403	427	438	454	461	461					1.045	0.953
FUEL FLOW	1745	1908	2073	2251	2436	2624	2813	3013					1.061	0.937
MAX RANGE														
KTAS	448	461	461	466	482	484	490	490					1.045	0.953
FUEL FLOW	1916	2076	2186	2329	2541	2695	2891	3073					1.061	0.937

*TEMPERATURE DEVIATION FROM STANDARD DAY.

DRAG INDEX = 50

KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
MIL	3214	3303	3389	3488	3589	3690	3821	3955	4096	4258	4414		1.065	0.932
VMIN	240	261	283	303	323	343	363	384	405	425	446		1.042	0.956
180														
210														
240														
270	2310	2864											1.173	0.856
300	2005	2344	2777										1.131	0.888
330	1879	2137	2441	2819	3289								1.116	0.898
360	1865	2060	2291	2563	2900	3296							1.097	0.918
390	1900	2057	2250	2474	2721	3007	3350	3771					1.078	0.924
420	1999	2120	2275	2461	2662	2887	3153	3445	3829				1.076	0.943
450	2151	2256	2376	2518	2688	2872	3077	3327	3600	3920	4284		1.070	0.963
480	2373	2462	2570	2694	2828	2979	3157	3357	3584	3839	4153		1.037	1.013
510	2750	2831	2924	3037	3169	3311	3462	3643	3874	4119	4414		0.980	1.195
540	3845	3936	4043	4169	4305	4475	4665	4893					0.809	1.284
570														
600														
630														
660														
MIL	5536	5513	5488	5461	5431	5398	5360	5315	5266	5203	5131		1.016	0.928
VMAX	562	560	558	556	554	551	548	544	540	534	527		1.040	0.952
MAX ENDURANCE														
KTAS	353	373	391	412	432	434	452	461	461	473	484		1.045	0.953
FUEL FLOW	1863	2049	2250	2459	2657	2857	3076	3301	3555	3837	4152		1.061	0.937
MAX RANGE														
KTAS	432	443	461	461	470	483	484	490	490	490	493		1.045	0.953
FUEL FLOW	2054	2219	2431	2565	2762	2999	3179	3408	3630	3865	4189		1.061	0.937

Figure A4-3. (Sheet 42)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−54°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR													
	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 100	MIL	3222	3314	3401	3507	3610	3729	3872	4022	4194	4377			1.065	0.932
	VMIN	242	264	286	307	327	349	371	394	417	441			1.042	0.956
	180														
	210														
	240														
	270	2383	2956											1.177	0.860
	300	2084	2434	2885										1.125	0.891
	330	1980	2238	2553	2940	3429								1.110	0.903
	360	1988	2192	2422	2703	3043	3465							1.094	0.927
	390	2050	2223	2422	2644	2894	3182	3556						1.064	0.936
	420	2185	2320	2484	2669	2870	3112	3378	3693	4088				1.065	0.951
	450	2381	2497	2625	2766	2936	3133	3360	3613	3914	4242			1.055	0.975
	480	2659	2754	2868	2993	3130	3287	3487	3703	3950	4244			1.023	1.030
	510	3130	3216	3310	3425	3560	3722	3898	4101	4373	4672			0.964	1.261
	540	4602	4716	4852	5000									0.762	1.365
	570														
	600														
	630														
	660														
	MIL	5350	5331	5311	5288	5263	5229	5192	5155	5110	5050			1.022	0.928
	VMAX	547	545	544	542	539	536	533	530	526	520			1.041	0.952
	MAX ENDURANCE														
	KTAS	339	363	375	389	420	432	444	461	461	461			1.045	0.953
	FUEL FLOW	1978	2191	2413	2644	2870	3102	3357	3601	3885	4197			1.061	0.937
	MAX RANGE														
	KTAS	412	432	440	459	463	473	481	484	484	490			1.045	0.953
	FUEL FLOW	2140	2381	2566	2819	2993	3231	3496	3731	3977	4302			1.061	0.937

*TEMPERATURE DEVIATION FROM STANDARD DAY.

	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
DRAG INDEX = 150	MIL	3230	3325	3417	3528	3641	3778	3937	4114	4335				1.065	0.933
	VMIN	244	267	289	311	333	357	381	407	435				1.042	0.956
	180														
	210														
	240														
	270	2455	3049											1.179	0.864
	300	2163	2525	2994										1.119	0.896
	330	2082	2340	2668	3069									1.095	0.914
	360	2119	2324	2553	2845	3201	3637							1.087	0.932
	390	2217	2396	2594	2818	3069	3361	3765						1.055	0.943
	420	2393	2530	2694	2878	3096	3341	3624	3948					1.051	0.964
	450	2630	2746	2874	3018	3207	3418	3649	3931	4238				1.041	0.988
	480	2956	3053	3169	3300	3456	3629	3837	4087	4356				1.008	1.045
	510	3518	3608	3715	3848	4005	4179	4387	4631					0.947	1.077
	540														
	570														
	600														
	630														
	660														
	MIL	5216	5201	5184	5167	5143	5113	5081	5047	4944				1.026	0.929
	VMAX	535	534	532	531	529	526	523	520	508				1.041	0.952
	MAX ENDURANCE														
	KTAS	326	339	361	376	389	404	423	443	461				1.045	0.953
	FUEL FLOW	2082	2317	2553	2809	3069	3332	3624	3929	4234				1.061	0.937
	MAX RANGE														
	KTAS	398	428	432	451	461	461	473	473	476				1.045	0.953
	FUEL FLOW	2255	2576	2745	3026	3267	3465	3762	4014	4317				1.061	0.937

Figure A4-3. (Sheet 43)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	3336	3436	3549	3678	3838	4025	4289						1.065	0.933
VMIN	270	293	315	340	366	394	429						1.042	0.957
180														
210														
240														
270														
300	2616	3105											1.146	0.893
330	2444	2783	3206										1.100	0.914
360	2457	2695	2986	3364									1.081	0.938
390	2570	2770	2997	3248	3566								1.048	0.950
420	2741	2905	3107	3329	3586	3883							1.039	0.968
450	2996	3136	3299	3494	3715	3973	4258						1.029	0.993
480	3366	3497	3642	3800	3998	4237	4492						1.001	1.062
510	4053	4165	4319	4508	4710								0.932	1.100
540														
570														
600														
630														
660														
MIL	5109	5094	5078	5054	5012	4949	4799						1.029	0.929
VMAX	525	524	523	520	516	508	492						1.042	0.952
MAX ENDURANCE														
KTAS	337	354	368	381	396	407	429						1.045	0.953
FUEL FLOW	2425	2691	2962	3243	3545	3870	4213						1.061	0.937
MAX RANGE														
KTAS	417	432	443	461	461	461	471						1.045	0.953
FUEL FLOW	2724	2971	3245	3568	3782	4028	4383						1.061	0.937

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	3349	3456	3582	3724	3922	4225							1.065	0.933
VMIN	273	297	321	349	379	421							1.041	0.957
180														
210														
240														
270														
300	2706	3217											1.142	0.894
330	2555	2900	3343										1.098	0.918
360	2594	2837	3135	3534									1.075	0.945
390	2747	2952	3178	3440	3772								1.041	0.956
420	2956	3137	3341	3577	3850								1.027	0.977
450	3276	3424	3587	3801	4041	4302							1.015	1.011
480	3707	3844	4012	4195	4400								0.982	1.076
510	4560	4689	4849										0.911	1.115
540														
570														
600														
630														
660														
MIL	5034	5008	4970	4914	4819	4645							1.031	0.927
VMAX	518	515	511	504	494	474							1.037	0.950
MAX ENDURANCE														
KTAS	337	352	366	381	394	421							1.045	0.953
FUEL FLOW	2539	2825	3113	3424	3757	4150							1.061	0.937
MAX RANGE														
KTAS	413	422	430	447	461	461							1.045	0.953
FUEL FLOW	2903	3154	3412	3777	4130	4381							1.061	0.937

Figure A4-3. (Sheet 44)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL		3477	3620	3799	4081								1.065	0.933
VMIN		301	329	360	402								1.041	0.958
180														
210														
240														
270														
300														
330		3023	3482										1.106	0.913
360		2980	3294										1.074	0.951
390		3134	3364	3649									1.037	0.967
420		3373	3592	3844	4116								1.020	0.982
450		3723	3907	4129									1.002	1.021
480		4241	4412										0.975	1.042
510														
540														
570														
600														
630														
660														
MIL		4861	4791	4688	4431								1.061	0.930
VMAX		499	491	479	448								1.042	0.949
MAX ENDURANCE														
KTAS		352	366	380	403								1.045	0.953
FUEL FLOW		2958	3276	3617	4007								1.061	0.937
MAX RANGE														
KTAS		409	414	430	448								1.045	0.953
FUEL FLOW		3274	3536	3928	4348								1.061	0.937

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			3666	3906									1.063	0.932
VMIN			338	376									1.041	0.959
180														
210														
240														
270														
300														
330														
360			3460										1.078	0.943
390			3577	3860									1.035	0.969
420			3861	4114									1.014	0.988
450			4237										0.998	1.005
480														
510														
540														
570														
600														
630														
660														
MIL			4555	4298									1.057	0.914
VMAX			464	430									1.039	0.939
MAX ENDURANCE														
KTAS			366	380									1.045	0.953
FUEL FLOW			3446	3810									1.061	0.937
MAX RANGE														
KTAS			403	413									1.045	0.953
FUEL FLOW			3692	4042									1.061	0.937

Figure A4-3. (Sheet 45)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 400	**MIL**			3746										1.063	0.933
	VMIN			352										1.039	0.960
	180														
	210														
	240														
	270														
	300														
	330														
	360			3628										1.046	0.949
	390			3791										1.024	0.979
	420			4132										1.006	1.002
	450														
	480														
	510														
	540														
	570														
	600														
	630														
	660														
	MIL			4233										1.054	0.909
	VMAX			422										1.041	0.938
	MAX ENDURANCE														
	KTAS			365										1.045	0.953
	FUEL FLOW			3620										1.061	0.937
	MAX RANGE														
	KTAS			392										1.045	0.953
	FUEL FLOW			3807										1.061	0.937

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure A4-3. (Sheet 46)

Subsonic Cruise — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−56°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	2750	2854	2952	3073	3194	3323	3461	3614					1.066	0.935
VMIN	293	318	342	366	391	415	438	462					1.044	0.954
180														
210														
240														
270														
300	2430												1.164	0.846
330	2031	2445											1.148	0.873
360	1851	2152	2519										1.122	0.897
390	1790	2021	2287	2625									1.102	0.913
420	1787	1974	2195	2440	2743	3126							1.087	0.903
450	1831	1983	2167	2371	2606	2884	3221						1.076	0.921
480	1929	2057	2207	2385	2578	2796	3069	3375					1.052	0.970
510	2118	2235	2373	2538	2741	2965	3218	3505					1.003	1.128
540	2801	2922	3063	3217	3397	3629	3917						0.867	1.209
570	4269												0.745	1.272
600														
630														
660														
MIL	4496	4465	4430	4389	4346	4301	4239	4138					1.007	0.921
VMAX	573	569	565	560	555	550	542	530					1.039	0.951
MAX ENDURANCE														
KTAS	404	430	448	459	472	482	482	487					1.045	0.953
FUEL FLOW	1781	1971	2167	2364	2574	2793	3064	3354					1.062	0.936
MAX RANGE														
KTAS	482	482	502	502	502	494	502	502					1.045	0.953
FUEL FLOW	1934	2063	2296	2467	2668	2839	3132	3415					1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 50

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	2765	2870	2981	3111	3244	3393	3560						1.065	0.935
VMIN	297	322	348	374	401	427	454						1.044	0.955
180														
210														
240														
270														
300	2524												1.165	0.845
330	2121	2552											1.146	0.880
360	1952	2263	2649										1.116	0.901
390	1919	2148	2423	2771									1.097	0.923
420	1943	2135	2354	2611	2920								1.070	0.920
450	2017	2181	2366	2572	2826	3112							1.058	0.937
480	2163	2296	2449	2628	2833	3080	3372						1.036	0.988
510	2422	2564	2719	2887	3101	3356	3631						0.977	1.191
540	3357	3503	3685	3884									0.813	1.291
570														
600														
630														
660														
MIL	4329	4304	4275	4239	4194	4136	4066						1.016	0.917
VMAX	553	550	547	542	537	530	521						1.040	0.952
MAX ENDURANCE														
KTAS	393	414	430	452	466	470	482						1.045	0.953
FUEL FLOW	1919	2133	2349	2571	2813	3077	3369						1.062	0.936
MAX RANGE														
KTAS	459	470	482	482	487	487	488						1.045	0.953
FUEL FLOW	2053	2248	2456	2635	2867	3105	3379						1.062	0.936

Figure A4-3. (Sheet 47)

Subsonic Cruise — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW−1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	2781	2889	3016	3157	3314	3500							1.065	0.935
VMIN	300	326	355	383	413	445							1.044	0.955
180														
210														
240														
270														
300														
330	2214	2666											1.147	0.885
360	2053	2377	2783										1.108	0.905
390	2049	2277	2561	2939									1.091	0.930
420	2105	2297	2522	2784	3127								1.062	0.931
450	2218	2381	2567	2791	3051	3381							1.050	0.947
480	2403	2537	2690	2889	3115	3382							1.024	1.010
510	2762	2907	3067	3254	3492	3785							0.951	1.061
540														
570														
600														
630														
660														
MIL	4210	4187	4155	4121	4082	4022							1.026	0.918
VMAX	539	536	532	528	523	515							1.042	0.952
MAX ENDURANCE														
KTAS	376	396	417	430	452	470							1.045	0.953
FUEL FLOW	2043	2275	2522	2778	3051	3365							1.062	0.936
MAX RANGE														
KTAS	445	467	482	482	482	486							1.045	0.953
FUEL FLOW	2194	2454	2699	2898	3124	3407							1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 150

KTAS \ GW−1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	2797	2915	3056	3218	3419								1.065	0.936
VMIN	304	333	363	395	432								1.044	0.955
180														
210														
240														
270														
300														
330	2306												1.122	0.900
360	2158	2491											1.095	0.924
390	2179	2414	2703										1.068	0.944
420	2268	2463	2698	2967									1.048	0.949
450	2418	2583	2787	3015	3313								1.034	0.961
480	2644	2782	2959	3170	3423								1.011	1.031
510	3108	3270	3446	3642									0.930	1.085
540														
570														
600														
630														
660														
MIL	4121	4100	4071	4040	3956								1.033	0.919
VMAX	528	525	522	518	506								1.043	0.952
MAX ENDURANCE														
KTAS	366	386	401	427	432								1.045	0.953
FUEL FLOW	2155	2413	2679	2965	3300								1.062	0.936
MAX RANGE														
KTAS	440	459	470	470	482								1.045	0.953
FUEL FLOW	2360	2627	2889	3102	3433								1.062	0.936

Figure A4-3. (Sheet 48)

Subsonic Cruise — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	2946	3111	3309										1.065	0.936
VMIN	340	374	412										1.043	0.956
180														
210														
240														
270														
300														
330														
360	2615												1.106	0.914
390	2554	2857											1.082	0.949
420	2642	2878	3181										1.043	0.960
450	2804	3012	3274										1.025	0.971
480	3060	3238	3489										1.004	1.051
510	3652												0.918	1.106
540														
570														
600														
630														
660														
MIL	4034	3982	3870										1.039	0.918
VMAX	517	510	495										1.041	0.951
MAX ENDURANCE														
KTAS	379	398	412										1.045	0.953
FUEL FLOW	2543	2834	3174										1.062	0.936
MAX RANGE														
KTAS	445	459	470										1.045	0.953
FUEL FLOW	2771	3067	3392										1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	2985	3184											1.065	0.936
VMIN	349	388											1.043	0.956
180														
210														
240														
270														
300														
330														
360	2746												1.106	0.917
390	2699	3026											1.080	0.958
420	2821	3085											1.031	0.976
450	3031	3270											1.010	0.988
480	3348	3573											0.986	1.007
510														
540														
570														
600														
630														
660														
MIL	3909	3786											1.048	0.917
VMAX	500	485											1.042	0.950
MAX ENDURANCE														
KTAS	379	395											1.045	0.953
FUEL FLOW	2679	3009											1.062	0.936
MAX RANGE														
KTAS	430	444											1.045	0.953
FUEL FLOW	2881	3222											1.062	0.936

Figure A4-3. (Sheet 49)

Subsonic Cruise — 45,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW−1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	2449	2575	2711	2857	3072								1.028	0.935
VMIN	361	392	422	452	489								1.064	0.954
180														
210														
240														
270														
300														
330														
360														
390	2053												1.124	0.894
420	1929	2226											1.108	0.913
450	1884	2119	2405										1.089	0.927
480	1905	2099	2331	2615									1.072	0.982
510	2066	2250	2464	2734	3072								1.002	1.112
540	2627	2805	3043										0.865	1.189
570														
600														
630														
660														
MIL	3545	3494	3441	3355	3249								0.965	0.931
VMAX	561	554	548	535	517								1.031	0.952
MAX ENDURANCE														
KTAS	459	471	482	482	489								1.045	0.953
FUEL FLOW	1882	2095	2328	2611	2968								1.062	0.936
MAX RANGE														
KTAS	487	488	501	502	502								1.045	0.953
FUEL FLOW	1927	2117	2391	2665	2994								1.062	0.936

*TEMPERATURE DEVIATION FROM STANDARD DAY.

DRAG INDEX = 50

KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
MIL	2479	2617	2775	3004									1.030	0.935
VMIN	368	402	436	478									1.066	0.954
180														
210														
240														
270														
300														
330														
360														
390	2167												1.121	0.902
420	2063	2368											1.098	0.925
450	2044	2295	2599										1.074	0.937
480	2099	2303	2559	2894									1.059	0.998
510	2324	2522	2782	3097									0.979	1.040
540	3139												0.807	1.138
570														
600														
630														
660														
MIL	3407	3365	3307	3218									0.977	0.932
VMAX	543	536	527	512									1.034	0.952
MAX ENDURANCE														
KTAS	444	465	471	482									1.045	0.953
FUEL FLOW	2043	2286	2557	2890									1.062	0.936
MAX RANGE														
KTAS	482	487	488	490									1.045	0.953
FUEL FLOW	2104	2331	2577	2914									1.062	0.936

Figure A4-3. (Sheet 50)

Subsonic Cruise — 45,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	2513	2675	2884										1.033	0.935
VMIN	377	414	458										1.069	0.955
180														
210														
240														
270														
300														
330														
360														
390	2288												1.089	0.906
420	2201	2535											1.070	0.935
450	2216	2475											1.057	0.956
480	2302	2528	2818										1.039	1.017
510	2602	2833											0.962	1.058
540														
570														
600														
630														
660														
MIL	3317	3280	3193										0.985	0.933
VMAX	529	522	507										1.036	0.952
MAX ENDURANCE														
KTAS	428	451	470										1.045	0.953
FUEL FLOW	2199	2475	2805										1.062	0.936
MAX RANGE														
KTAS	482	482	487										1.045	0.953
FUEL FLOW	2309	2535	2846										1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
MIL	2561	2770											1.039	0.935
VMIN	388	435											1.078	0.955
180														
210														
240														
270														
300														
330														
360														
390	2427												1.091	0.907
420	2343												1.069	0.950
450	2395	2686											1.050	0.964
480	2525	2776											1.022	1.037
510	2907												0.942	1.084
540														
570														
600														
630														
660														
MIL	3256	3176											0.984	0.932
VMAX	518	504											1.024	0.951
MAX ENDURANCE														
KTAS	414	435											1.045	0.953
FUEL FLOW	2342	2676											1.062	0.936
MAX RANGE														
KTAS	470	481											1.045	0.953
FUEL FLOW	2469	2785											1.062	0.936

Figure A4-3. (Sheet 51)

Diversion Decision — Divert

DATA BASIS FLIGHT TEST **ENGINE F100-PW-229**

CONDITIONS:

- MIL CLIMB AT 423 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT SEA LEVEL

FUEL ON BOARD —LB	REMAIN AT SEA LEVEL		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM		ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	19		5.0K/0.45	20	16	104
400	37		15.0K/0.54	46	39	204
600	55		25.0K/0.69	78	62	275
800	73	0.42M	30.0K/0.71	113	72	306
1000	91		35.0K/0.76	151	85	338
1500	136		40.0K/0.82	250	99	376
2000	180		40.0K/0.83	349	99	376

IF YOU ARE AT 5000 FEET

FUEL ON BOARD —LB	REMAIN AT 5000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*		ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	26		5.0K/0.45	26	16	104
400	46		15.0K/0.54	52	39	204
600	66		30.0K/0.72	88	72	306
800	87	0.46M	35.0K/0.76	124	85	338
1000	107		35.0K/0.77	163	85	338
1500	157		40.0K/0.83	263	99	376
2000	207		40.0K/0.84	362	99	376

*** START DESCENT AT 16 NM. 104 LB FUEL USED IN DESCENT.**

IF YOU ARE AT 10,000 FEET

FUEL ON BOARD —LB	REMAIN AT 10,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*		ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	32		10.0K/0.50	32	28	164
400	55		20.0K/0.60	60	49	239
600	78		30.0K/0.71	97	72	306
800	101	0.50M	35.0K/0.76	136	85	338
1000	123		35.0K/0.77	175	85	338
1500	180		40.0K/0.83	275	99	376
2000	236		40.0K/0.84	374	99	376

*** START DESCENT AT 28 NM. 164 LB FUEL USED IN DESCENT.**

NOTES:

- 4.0% RANGE GAIN FOR 10 KNOTS TAILWIND.
- 2.5% RANGE LOSS FOR 10 KNOTS HEADWIND.
- SUBTRACT 2.5 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL DIVERT RANGE AT CURRENT ALTITUDE INCLUDES CRUISE AND DESCENT, AND TOTAL DIVERT RANGE AT OPTIMUM ALTITUDE INCLUDES CLIMB, CRUISE, AND DESCENT.

Figure A4-4. (Sheet 1)

Diversion Decision — Divert

DATA BASIS FLIGHT TEST **ENGINE F100-PW-229**

CONDITIONS:

- MIL CLIMB AT 423 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT 20,000 FEET

FUEL ON BOARD —LB	REMAIN AT 20,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	72	25.0K/0.70	76	62	275
600	101	35.0K/0.76	114	85	338
800	130 0.61M	40.0K/0.82	155	99	376
1000	158	40.0K/0.82	196	99	376
1500	229	40.0K/0.83	298	99	376
2000	299	40.0K/0.84	397	99	376

* START DESCENT AT 49 NM. 239 LB FUEL USED IN DESCENT.

IF YOU ARE AT 30,000 FEET

FUEL ON BOARD —LB	REMAIN AT 30,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	89	30.0K/0.71	89	72	306
600	125	40.0K/0.82	131	99	376
800	161 0.72M	40.0K/0.82	172	99	376
1000	196	40.0K/0.82	213	99	376
1500	284	40.0K/0.83	314	99	376
2000	371	40.0K/0.84	414	99	376

* START DESCENT AT 72 NM. 306 LB FUEL USED IN DESCENT.

IF YOU ARE AT 40,000 FEET

FUEL ON BOARD —LB	REMAIN AT 40,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	104	40.0K/0.82	104	99	376
600	146	40.0K/0.82	146	99	376
800	187 0.83M	40.0K/0.82	187	99	376
1000	228	40.0K/0.83	228	99	376
1500	330	40.0K/0.84	330	99	376
2000	429	40.0K/0.84	429	99	376

* START DESCENT AT 99 NM. 376 LB FUEL USED IN DESCENT.

NOTES:

- 4.0% RANGE GAIN FOR 10 KNOTS TAILWIND.
- 2.5% RANGE LOSS FOR 10 KNOTS HEADWIND.
- SUBTRACT 2.5 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL DIVERT RANGE AT CURRENT ALTITUDE INCLUDES CRUISE AND DESCENT, AND TOTAL DIVERT RANGE AT OPTIMUM ALTITUDE INCLUDES CLIMB, CRUISE, AND DESCENT.

Figure A4-4. (Sheet 2)

Diversion Decision — Loiter

DATA BASIS FLIGHT TEST **ENGINE F100-PW-229**

CONDITIONS:

- MIL CLIMB AT 423 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT SEA LEVEL

FUEL ON BOARD —LB	REMAIN AT SEA LEVEL TOTAL LOITER TIME—MIN		CLIMB TO OPT ALTITUDE ALT/MACH	CLIMB TO OPT ALTITUDE TOTAL TIME —MIN	DESCEND FROM OPT ALT —NM	DESCEND FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	9		0.0K/0.31	9	0	0
600	13		5.0K/0.34	14	13	87
800	18	0.32M	20.0K/0.46	20	45	228
1000	22		30.0K/0.56	26	67	292
1500	32		35.0K/0.66	40	80	327
2000	42		35.0K/0.66	52	80	327

IF YOU ARE AT 5000 FEET

FUEL ON BOARD —LB	REMAIN AT 5000 FT TOTAL LOITER TIME—MIN*		CLIMB TO OPT ALTITUDE ALT/MACH	CLIMB TO OPT ALTITUDE TOTAL TIME —MIN	DESCEND FROM OPT ALT —NM	DESCEND FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	—		—	—	—	—
600	15		10.0K/0.38	16	24	149
800	20	0.35M	25.0K/0.50	22	56	260
1000	24		35.0K/0.66	28	80	327
1500	35		35.0K/0.66	41	80	327
2000	45		35.0K/0.66	53	80	327

*** START DESCENT AT 13 NM. 87 LB FUEL USED IN DESCENT.**

IF YOU ARE AT 10,000 FEET

FUEL ON BOARD —LB	REMAIN AT 10,000 FT TOTAL LOITER TIME—MIN*		CLIMB TO OPT ALTITUDE ALT/MACH	CLIMB TO OPT ALTITUDE TOTAL TIME —MIN	DESCEND FROM OPT ALT —NM	DESCEND FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	—		—	—	—	—
600	17		15.0K/0.42	17	35	193
800	22	0.38M	25.0K/0.50	23	56	260
1000	26		35.0K/0.66	29	80	327
1500	38		35.0K/0.66	42	80	327
2000	48		35.0K/0.66	54	80	327

*** START DESCENT AT 25 NM. 150 LB FUEL USED IN DESCENT.**

NOTES:

- LOITER TIME AT CONSTANT ALTITUDE BASED ON 10 NM HOLDING PATTERN WITH 30-DEGREE BANK TURNS.
- ADD 0.5 MIN TO LOITER TIME FOR EACH 1000 FT OF DESTINATION ELEVATION.
- SUBTRACT 2.3 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL LOITER TIME AT CURRENT ALTITUDE INCLUDES LOITER AND DESCENT, AND TOTAL TIME AT OPTIMUM ALTITUDE INCLUDES CLIMB, LOITER, AND DESCENT.

Figure A4-4. (Sheet 3)

Diversion Decision — Loiter

DATA BASIS FLIGHT TEST **ENGINE F100-PW-229**

CONDITIONS:

- MIL CLIMB AT 423 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT 20,000 FEET

FUEL ON BOARD —LB	REMAIN AT 20,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*	ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	—	—	—	—	—
600	20	25.0K/0.50	21	56	260
800	25 0.47M	35.0K/0.66	26	80	327
1000	30	35.0K/0.66	32	80	327
1500	42	35.0K/0.66	44	80	327
2000	53	35.0K/0.66	56	80	327

* START DESCENT AT 46 NM. 229 LB FUEL USED IN DESCENT.

IF YOU ARE AT 30,000 FEET

FUEL ON BOARD —LB	REMAIN AT 30,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*	ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	—	—	—	—	—
600	23	30.0K/0.56	23	67	292
800	28 0.57M	35.0K/0.66	29	80	327
1000	34	35.0K/0.66	34	80	327
1500	46	35.0K/0.66	46	80	327
2000	58	35.0K/0.66	58	80	327

* START DESCENT AT 67 NM. 292 LB FUEL USED IN DESCENT.

IF YOU ARE AT 40,000 FEET

FUEL ON BOARD —LB	REMAIN AT 40,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*	ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	—	—	—	—	—
600	—	—	—	—	—
800	30 0.73M	40.0K/0.73	30	95	365
1000	35	40.0K/0.73	35	95	365
1500	47	40.0K/0.73	47	95	365
2000	58	40.0K/0.73	58	95	365

* START DESCENT AT 95 NM. 365 LB FUEL USED IN DESCENT.

NOTES:

- LOITER TIME AT CONSTANT ALTITUDE BASED ON 10 NM HOLDING PATTERN WITH 30-DEGREE BANK TURNS.
- ADD 0.5 MIN TO LOITER TIME FOR EACH 1000 FT OF DESTINATION ELEVATION.
- SUBTRACT 2.3 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL LOITER TIME AT CURRENT ALTITUDE INCLUDES LOITER AND DESCENT, AND TOTAL TIME AT OPTIMUM ALTITUDE INCLUDES CLIMB, LOITER, AND DESCENT.

Figure A4-4. (Sheet 4)

Best Cruise Altitude for Short Range Mission — Penetration Descent

DATA BASIS FLIGHT TEST **ENGINE F100-PW-229**

CONDITIONS:

- **STANDARD DAY**
- **NO WIND**
- **MIL CLIMB AT SCHEDULED KIAS OR CONSTANT ALTITUDE OPTIMUM CRUISE MACH NO., WHICHEVER IS LOWER**
- **CRUISE AT CONSTANT ALTITUDE AT OPTIMUM MACH**
- **DESCEND AT IDLE WITH SPEEDBRAKES OPEN**
- **DESCENT SPEED = CRUISE MACH TO 300 KIAS, THEN 300 KIAS**

START CLIMB GROSS WEIGHT*	TOTAL MISSION RANGE**	BEST CRUISE ALTITUDE	TOTAL FUEL CONSUMED (LB)/DESCENT RANGE (NM)					
LB	NM	FT	DI 0	DI 50	DI 100	DI 150	DI 200 (C)	DI 250
20,000	50	23,700	428/14.0	464/12.9	498/12.2	529/11.8	559/11.5	586/11.2
20,000	100	33,500	672/19.7	730/18.5	788/17.5	847/16.6	902/15.9	960/15.3
20,000	150	41,600	888/25.2	972/23.8	1061/22.4	1168/21.0	977/21.0	1063/19.4
20,000	200	41,700	1082/25.1	1186/23.7	1295/22.3	1424/20.9	1514/20.3	1614/19.3
20,000	250	41,700	1273/24.8	1398/23.4	1528/22.1	1676/20.7	1784/20.1	1903/19.1
24,000	50	19,000	463/13.5	505/12.2	538/11.5	574/10.8	610/10.2	645/9.9
24,000	100	30,600	752/21.4	820/19.8	889/18.5	954/17.5	1022/16.6	1089/15.8
24,000	150	35,700	983/24.6	1081/23.0	1180/21.6	1277/20.4	1378/19.2	1486/18.2
24,000	200	36,800	1211/25.2	1332/23.6	1459/22.1	1582/20.8	1694/19.6	1816/18.6
24,000	250	37,100	1439/25.3	1584/23.6	1734/22.1	1883/20.8	2005/19.7	2152/18.5
28,000	50	16,200	492/13.5	537/12.3	575/11.4	614/10.7	656/10.0	695/9.5
28,000	100	26,700	822/21.6	899/19.8	976/18.5	1054/17.3	1131/16.4	1206/15.5
(A) 28,000	(B) 150	(D) 32,100	1094/25.3	1206/23.8	1320/22.0	1429/20.8	(E) 1543/19.6	(F) 1653/18.6
28,000	200	34,700	1354/27.0	1488/25.3	1636/23.7	1777/22.3	1920/21.0	2067/19.9
28,000	250	35,200	1605/27.3	1770/25.4	1943/23.8	2107/22.4	2289/21.1	2468/20.0
32,000	50	13,200	519/12.6	567/11.4	608/10.7	652/9.9	698/9.2	739/8.6
32,000	100	22,600	890/20.6	973/18.9	1060/17.8	1145/16.6	1231/15.5	1314/14.7
32,000	150	29,200	1197/25.9	1322/24.4	1454/22.7	1574/21.2	1696/20.0	1818/18.9
32,000	200	31,500	1494/27.5	1646/25.7	1808/24.2	1969/22.7	2137/21.4	2288/20.2
32,000	250	33,300	1780/28.8	1969/26.8	2155/25.3	2343/23.7	2547/22.4	2750/21.1
36,000	50	10,900	545/11.9	597/10.7	640/10.0	688/9.3	738/8.6	784/8.1
36,000	100	20,400	953/20.6	1043/18.9	1137/17.9	1231/16.7	1326/15.7	1417/14.9
36,000	150	26,800	1299/26.1	1438/24.7	1578/23.0	1711/21.6	1850/20.4	1978/19.2
36,000	200	29,800	1630/28.5	1800/26.6	1973/25.2	2148/23.9	2339/22.5	2508/21.1
36,000	250	30,900	1951/29.4	2160/27.4	2363/25.9	2575/24.4	2803/23.0	3020/21.6
40,000	50	7,900	568/10.0	624/8.9	672/8.3	724/7.8	778/7.2	828/6.7
40,000	100	19,000	1016/20.7	1115/19.2	1215/17.9	1316/17.0	1421/16.1	1523/15.3
40,000	150	23,900	1399/25.3	1553/23.9	1702/22.1	1843/21.0	1995/19.8	2134/18.6
40,000	200	27,700	1768/28.6	1952/26.9	2146/25.4	2331/24.2	2536/22.9	2720/21.4
40,000	250	28,900	2125/29.6	2349/27.8	2578/26.3	2805/24.9	3051/23.6	3289/22.1
44,000	50	6,700	588/9.7	648/8.5	703/7.7	760/7.4	818/6.8	870/6.3
44,000	100	17,100	1080/20.0	1187/18.5	1296/17.3	1403/16.5	1517/15.7	1625/14.8
44,000	150	21,400	1503/24.2	1664/22.8	1825/21.2	1978/20.1	2139/19.1	2290/18.0
44,000	200	25,800	1898/28.6	2103/26.6	2313/25.3	2515/24.1	2730/22.8	2935/21.4
44,000	250	26,900	2288/29.4	2537/27.6	2788/26.1	3036/24.8	3299/23.5	3559/22.1
48,000	50	5,000	615/8.5	674/7.3	734/6.6	793/6.3	857/5.8	916/5.3
48,000	100	15,600	1143/19.3	1258/17.9	1377/16.8	1490/16.0	1613/15.3	1728/14.4
48,000	150	21,000	1601/25.1	1771/23.4	1947/22.0	2115/21.0	2283/19.9	2450/19.1
48,000	200	23,700	2028/27.7	2253/26.0	2479/24.7	2699/23.6	2929/22.2	3147/21.0
48,000	250	25,300	2451/28.9	2719/27.5	2998/25.9	3267/24.6	3546/23.5	

* **CLIMB BEGINS AT SL.**
** **CLIMB/CRUISE/DESCENT.**

Figure A4-5. (Sheet 1)

Best Cruise Altitude for Short Range Mission — Maximum Range Descent

DATA BASIS FLIGHT TEST **ENGINE F100-PW-229**

CONDITIONS:

- STANDARD DAY
- NO WIND
- MIL CLIMB AT SCHEDULED KIAS OR CONSTANT ALTITUDE OPTIMUM CRUISE MACH NO., WHICHEVER IS LOWER
- CRUISE AT CONSTANT ALTITUDE AT OPTIMUM MACH
- DESCEND AT IDLE WITH SPEEDBRAKES CLOSED
- DESCENT INDEX/DESCENT SPEED KIAS = 0/215, 50/220, ≥ 100/230

START CLIMB GROSS WEIGHT*	TOTAL MISSION RANGE**	BEST CRUISE ALTITUDE	TOTAL FUEL CONSUMED (LB)/DESCENT RANGE (NM)					
LB	NM	FT	DI 0	DI 50	DI 100	DI 150	DI 200	DI 250
20,000	50	14,400	400/46.3	425/38.7	448/31.9	474/28.3	503/25.2	534/22.6
20,000	100	30,100	669/87.7	695/75.0	733/61.6	780/54.3	831/48.6	877/44.1
20,000	150	40,100	899/125.3	938/105.5	993/85.6	1065/75.6	1140/67.5	1215/60.7
20,000	200	41,800	1099/134.1	1158/111.7	1236/90.6	1351/79.9	1431/70.4	1528/64.1
20,000	250	41,900	1292/135.5	1374/112.2	1471/90.6	1606/79.7	1707/71.1	1822/63.8
24,000	50	15,600	414/44.7	437/39.8	463/34.7	496/31.1	528/28.2	560/25.7
24,000	100	29,500	717/79.2	757/70.7	803/61.8	859/55.7	918/50.7	978/46.7
24,000	150	34,400	966/92.8	1030/83.0	1098/72.5	1185/65.5	1276/59.8	1366/54.9
24,000	200	36,500	1195/99.1	1280/89.1	1378/77.3	1486/70.0	1591/64.0	1707/58.7
24,000	250	37,800	1423/104.7	1531/92.5	1652/80.8	1788/73.1	1895/65.9	2013/60.4
28,000	50	16,800	431/42.8	465/38.8	488/36.1	521/33.1	561/30.3	598/28.1
28,000	100	27,200	775/65.9	825/60.6	880/55.9	942/51.4	1012/47.5	1081/44.3
28,000	150	32,500	1054/77.5	1133/72.9	1220/66.9	1314/61.6	1416/57.2	1517/53.2
28,000	200	35,000	1317/83.7	1418/78.2	1533/72.5	1660/66.7	1793/61.6	1930/57.3
28,000	250	35,700	1566/86.5	1701/80.2	1842/73.8	1989/68.2	2159/63.4	2333/58.4
32,000	50	15,400	462/36.5	497/33.8	530/31.8	567/29.5	609/27.7	649/25.8
32,000	100	24,900	839/54.2	901/51.2	961/48.8	1034/45.7	1112/42.8	1190/40.4
32,000	150	30,100	1151/63.9	1245/61.7	1346/59.6	1453/55.4	1564/52.0	1680/48.8
32,000	200	32,900	1447/70.3	1572/67.1	1694/65.0	1839/60.8	1996/57.1	2148/53.4
32,000	250	34,000	1733/73.0	1891/70.0	2042/67.4	2216/62.8	2402/59.2	2605/55.5
36,000	50	13,200	493/30.1	534/27.8	573/26.3	615/24.5	662/23.2	705/21.7
36,000	100	22,200	906/44.4	980/42.4	1049/41.1	1131/39.0	1218/36.8	1302/35.0
36,000	150	28,200	1258/54.0	1363/53.0	1475/52.5	1598/49.4	1725/46.5	1847/44.3
36,000	200	30,600	1584/58.8	1731/57.0	1866/56.5	2026/53.7	2203/51.0	2368/48.0
36,000	250	31,600	1905/61.3	2088/59.7	2257/58.8	2454/55.4	2656/52.9	2878/50.0
40,000	50	10,800	523/24.7	573/22.3	617/21.2	662/20.1	714/18.9	761/17.7
40,000	100	20,200	975/37.6	1059/36.1	1139/35.4	1228/33.9	1325/32.2	1420/30.8
40,000	150	26,100	1362/46.3	1484/45.3	1610/45.6	1747/43.3	1884/40.9	2016/39.3
40,000	200	28,500	1731/49.8	1890/49.2	2050/49.3	2223/47.2	2413/45.1	2594/42.6
40,000	250	29,300	2082/51.7	2285/51.1	2477/51.1	2698/48.5	2916/46.6	3157/44.1
44,000	50	7,600	548/19.7	603/17.0	655/15.8	707/15.0	765/14.0	818/13.0
44,000	100	18,600	1045/32.9	1141/31.4	1232/31.0	1328/29.9	1435/28.5	1537/27.3
44,000	150	24,200	1470/40.1	1608/39.1	1748/39.9	1898/38.1	2047/36.1	2192/34.8
44,000	200	26,100	1866/43.1	2053/41.9	2231/42.9	2421/41.1	2625/39.5	2825/37.2
44,000	250	27,100	2257/44.3	2483/44.0	2702/44.5	2944/42.5	3186/40.9	3442/38.9
48,000	50	5,400	571/16.7	633/13.9	692/12.6	748/11.9	812/11.0	871/10.1
48,000	100	16,200	1114/28.0	1221/26.5	1325/26.1	1430/25.1	1547/24.1	1658/22.8
48,000	150	21,000	1573/34.2	1733/32.6	1886/32.8	2047/31.5	2209/29.9	2367/28.9
48,000	200	23,900	2004/37.3	2216/36.2	2412/37.2	2624/35.7	2846/33.9	3057/32.3
48,000	250	25,300	2430/38.6	2680/38.5	2931/39.1	3190/37.5	3457/36.2	

* CLIMB BEGINS AT SL.
** CLIMB/CRUISE/DESCENT.

Figure A4-5. (Sheet 2)

PART 5 – ENDURANCE

Refer to SUBSONIC CRUISE TABLES, Part 4, for endurance information.

PART 6 – DESCENT

TABLE OF CONTENTS

LIST OF CHARTS

MAXIMUM RANGE DESCENT

Maximum range descent performance data is presented in figure A6-1. The data is based on a descent speed which results in maximum distance (range) being covered during descent. Effects of GW and drag index are shown in the chart. Descent speed is tabulated on the chart.

REFER TO FIGURE A6-1.

Enter chart on sheet 1 with initial altitude (A), and proceed upward to intercept appropriate drag index line (B), and then proceed to the right to the baseline. Note this point on the baseline. Enter GW block at (C), proceed to the right to intercept the appropriate drag index line (B), and proceed downward to intercept a line (D) which follows the guidelines and intercepts the point previously noted on the baseline. Continue to the right to read range (E). Repeat this process on sheet 2 in the same manner to obtain the fuel consumed (F) and time (G). If final altitude is above sea level, repeat the above process, using final altitude in place of initial altitude. The difference between the resulting values is then range, fuel, and time to descend from initial to final altitude. Obtain descent speed from the table on the chart.

SAMPLE PROBLEM.

A.	Initial altitude	=	30,000 feet
B.	Drag index	=	50
C.	GW	=	30,000 pounds
D.	Intersection point		
E.	Range	=	56 nm
F.	Fuel consumed	=	242 pounds
G.	Time	=	12.4 minutes
•	Descent speed	=	220 KIAS

The above data is for a descent to sea level. If the descent was stopped at 5000 feet:

•	Range	=	56 – 10 = 46 nm
•	Fuel consumed	=	242 – 69 = 173 pounds
•	Time	=	12.4 – 2.7 = 9.7 minutes

PENETRATION DESCENT

Fuel consumed, distance, and time to execute a penetration descent are shown in figure A6-2. The data is based on idle rpm, 300 KIAS, and speedbrakes open. Effects of GW and drag index are shown on the chart.

REFER TO FIGURE A6-2.

Enter chart with initial altitude (A), and proceed upward to intercept appropriate drag index line in the time, range, and fuel blocks (B), and then proceed to the right to GW baseline and follow guidelines to GW (C). Continue to the right to read fuel consumed (D), range (E), and time (F). If final altitude is above sea level, repeat the above process using final altitude in place of initial altitude. The difference between the resulting values is then fuel, range, and time to descend from initial to final altitude.

SAMPLE PROBLEM.

A.	Initial altitude	=	30,000 feet
B.	Drag index	=	100
C.	GW	=	24,000 pounds
D.	Fuel consumed	=	63 pounds
E.	Range	=	19 nm
F.	Time	=	3.2 minutes

The above data is for a descent to sea level. If the descent was stopped at 5000 feet:

- Fuel consumed = 63 – 17 = 46 pounds
- Range = 19 – 3 = 16 nm
- Time = 3.2 – 0.6 = 2.6 minutes

DESCENT WITH INOPERATIVE ENGINE

Figure A6-3 contains time and distance data for a descent with an inoperative engine. The data is presented as a function of descent airspeed for descents from various initial altitudes to sea level. Minimum EPU operating time is shown.

The chart is intended to be used to estimate the time available for engine airstart attempts once the aircraft has been maneuvered into the airstart envelope and may also be used to obtain glide distance with the engine inoperative.

REFER TO FIGURE A6-3.

Enter the chart with airspeed (A), proceed upward to the appropriate GW/altitude line (B), and then to the left to read time (C) and distance (D). To determine time and distance available to descend to another altitude, repeat the above steps for the final altitude and take the difference between the sets of data.

SAMPLE PROBLEM.

A.	Descent airspeed	=	250 KIAS
B.	GW/altitude	=	20,000 pounds/ 30,000 feet
C.	Time (to sea level)	=	7.8 minutes
D.	Distance (to sea level)	=	40.3 nm

If the descent was stopped at 5000 feet:

- Time = 7.8 – 1.5 = 6.3 minutes
- Distance = 40.3 – 6.6 = 33.7 nm

Maximum Range Descent — IDLE

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:

- SPEEDBRAKES — CLOSED

CONDITIONS:

- STANDARD DAY

DESCENT SPEED	
DRAG INDEX	KIAS
0	215
50	220
100	230
200	230
300	230
400	230

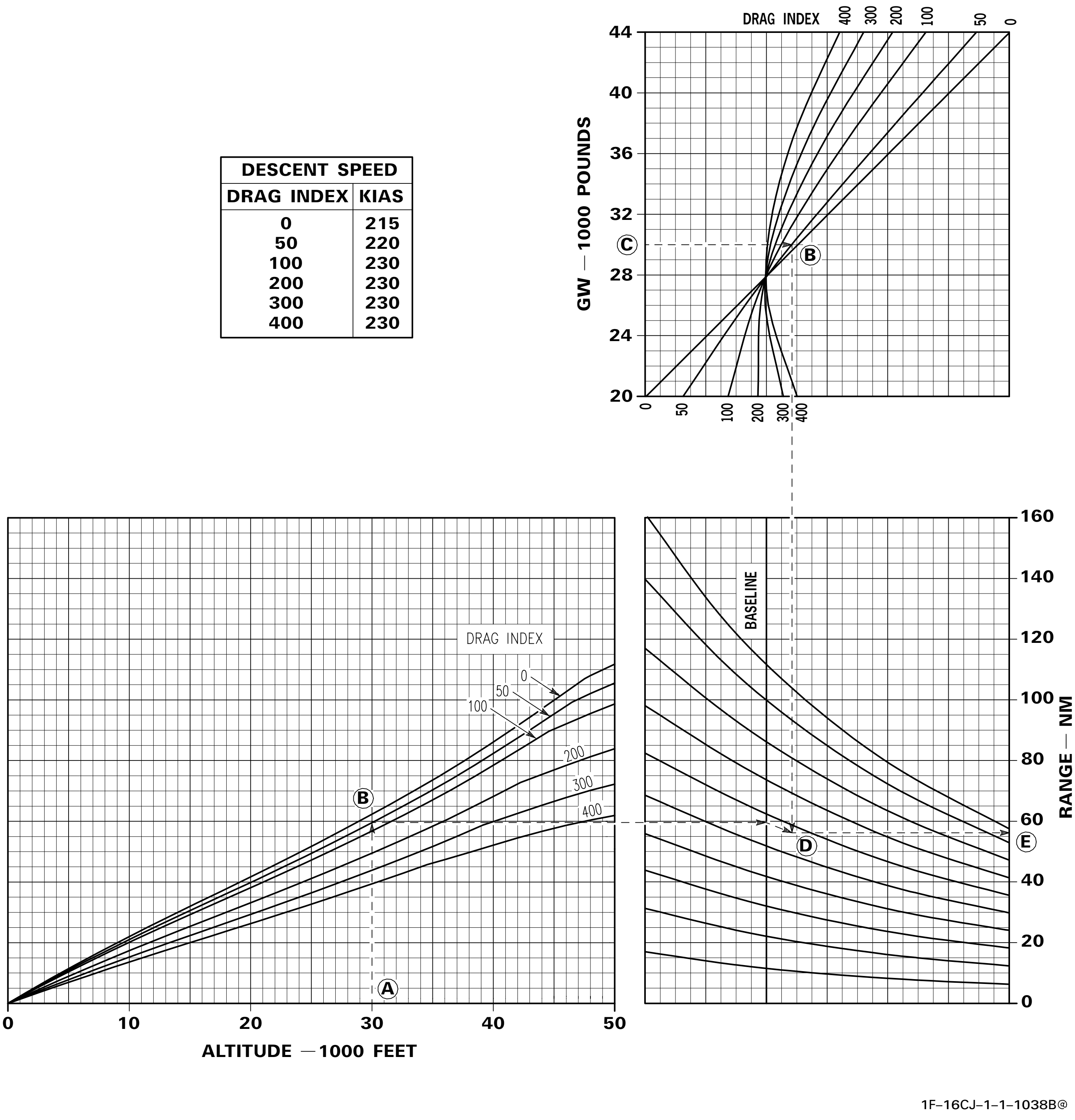


Figure A6-1. (Sheet 1)

Maximum Range Descent — IDLE

DATA BASIS FLIGHT TEST

ENGINE F100–PW–229

CONFIGURATION:

- SPEEDBRAKES — CLOSED

CONDITIONS:

- STANDARD DAY

DESCENT SPEED	
DRAG INDEX	KIAS
0	215
50	220
100	230
200	230
300	230
400	230

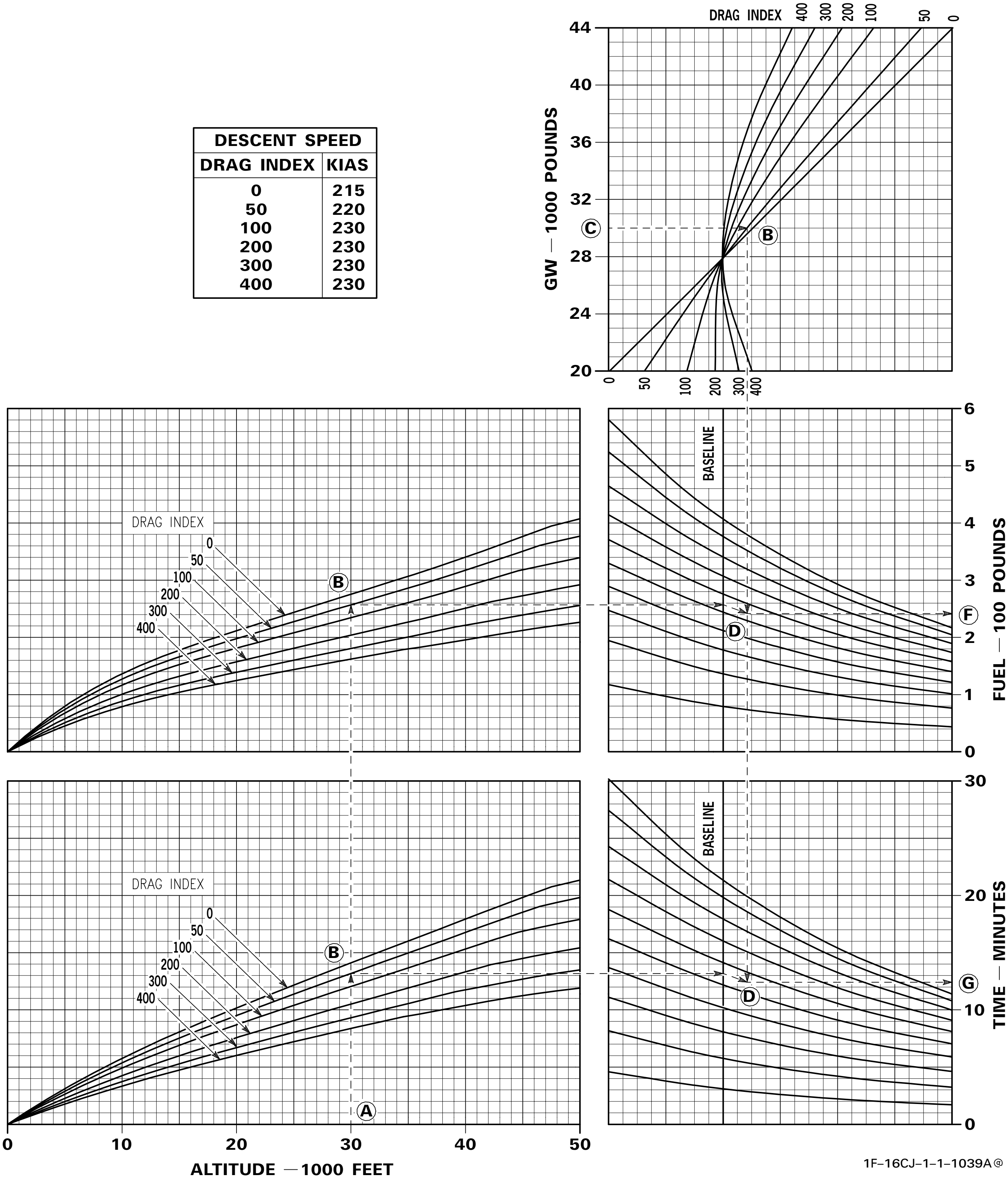


Figure A6-1. (Sheet 2)

Penetration Descent

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE
- DESCENT SPEED = CRUISE MACH TO 300 KIAS, THEN 300 KIAS
- STANDARD DAY

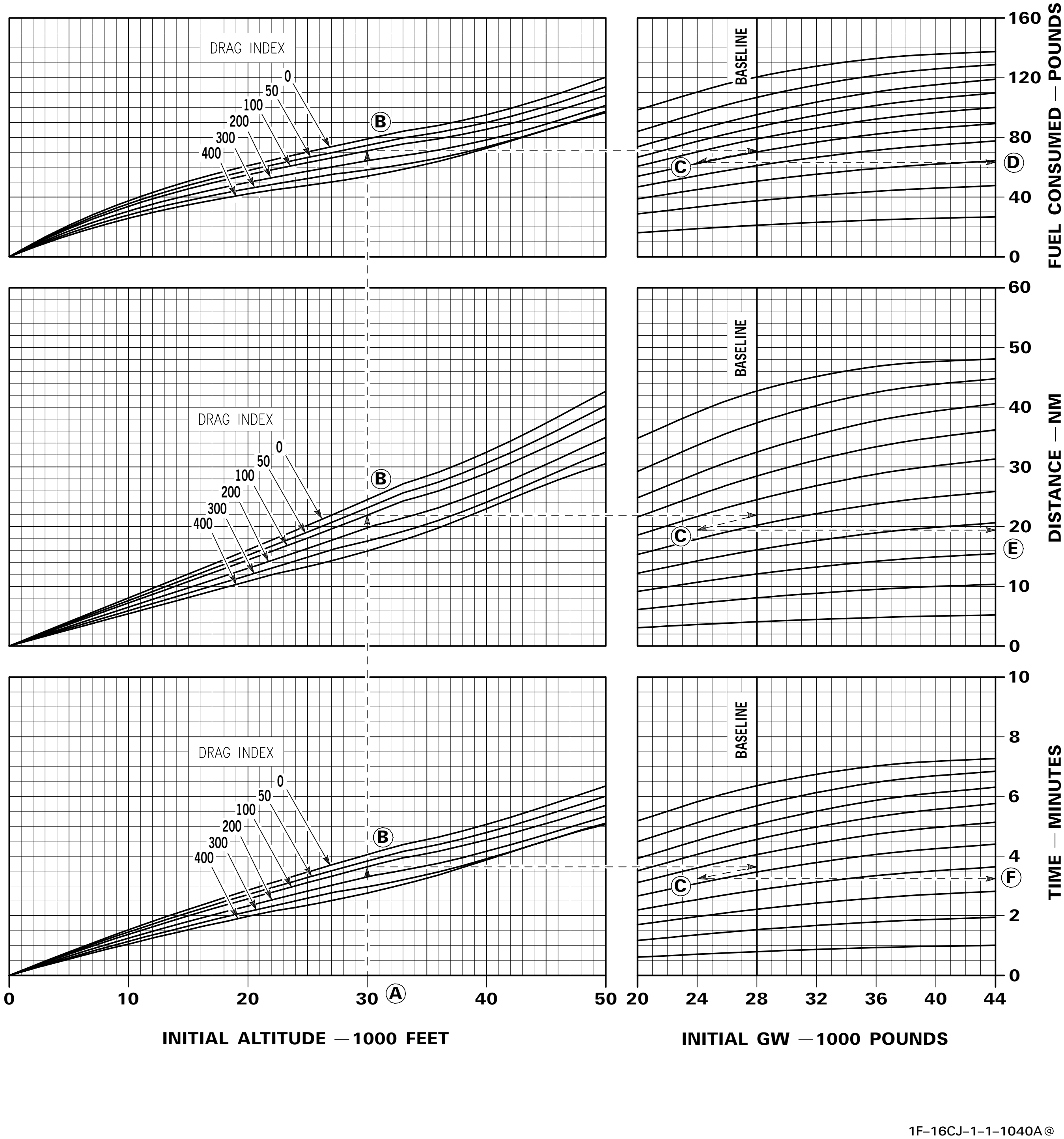


Figure A6-2.

Descent With Inoperative Engine

DATA BASIS FLIGHT TEST

ENGINE F100–PW–229

CONFIGURATION:
- DRAG INDEX = 0

CONDITIONS:
- STANDARD DAY
- WINDMILLING ENGINE OR LOCKED ROTOR
- NO WIND

NOTE: REDUCE TIME AND DISTANCE 1% FOR EACH 10–UNIT INCREASE IN DRAG INDEX.

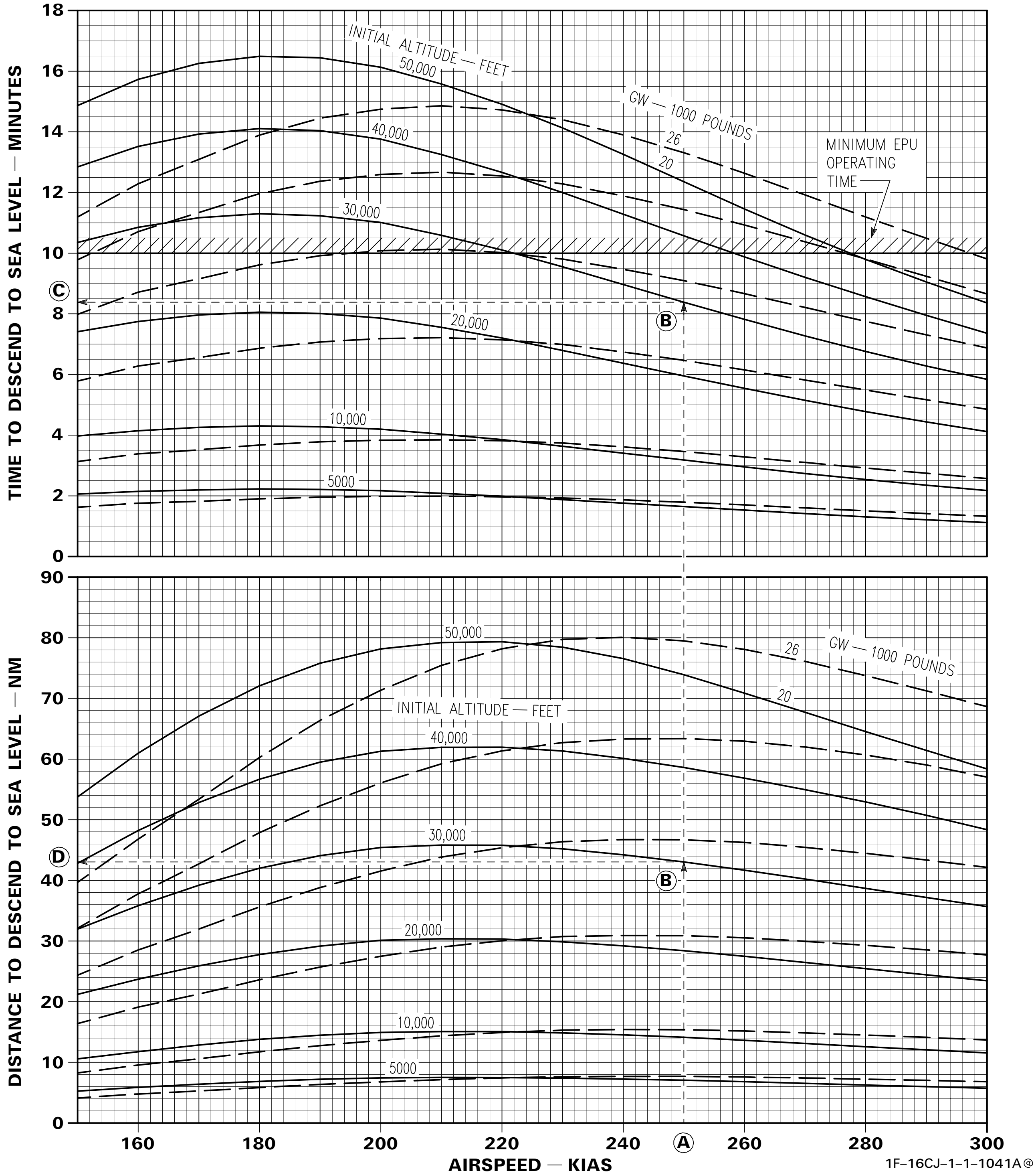


Figure A6-3.

PART 7 — LANDING

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LIST OF CHARTS

DEFINITION OF TERMS

Aerodynamic braking (two-point attitude) – Use of speedbrakes and maximum of 13 degrees AOA until deceleration to 100 KIAS.

Maximum effort braking – A single continuous wheel brake application using maximum pedal pressure (antiskid on) in conjunction with two-point aerodynamic braking (consistent with maintaining directional control). When wheel brakes become effective, the aircraft will automatically rotate to the three-point attitude. After the nose tire is on the runway, maintain full aft stick short of nose tire lift-off and open speedbrakes fully. On a dry runway, the nose lowers soon after wheel brakes are applied. **LESS 129** On a wet or icy runway, wheel brakes are not applied until deceleration to 100 KIAS to allow wheel spinup and proper antiskid operation. **129** On a wet or icy runway, apply brakes at any landing speed. Short Field Landing Distance charts are based on brakes applied at 100 KIAS.

Use drag chute immediately after touchdown in conjunction with proper wheel braking and allow aircraft to rotate to the three–point attitude as the drag chute opens. At touchdown speeds above 170 KIAS use maximum effort braking and delay drag chute deployment (and rotation to three-point attitude) until deceleration to 170 KIAS.

LANDING SPEED

Final approach and touchdown airspeeds are given in figure A7-1. Both airspeeds are based on 13 degrees AOA, matching the AOA indexer on speed indication.

SAMPLE PROBLEM.

A.	GW	=	20,000 pounds
B.	Touchdown speed	=	125 KIAS
C.	Final approach speed	=	136 KIAS

SHORT FIELD LANDING

Ground roll distance for minimum distance landing is given in figure A7-2 (sheets 1 through 6).

Data for measured runway condition readings (RCR) not provided on charts can be obtained by interpolation. For wet runways, interpolate between RCR 18 (WET), RCR 12 (WET), and RCR 10 (WET). For runways with no liquid water present, interpolate between RCR 23 (DRY CONCRETE), RCR 16 (DRY), RCR 8 (SNOW), and RCR 4 (ICY). If RCR is unknown and runway is wet, use RCR 18 (WET) for wet concrete and RCR 12 (WET) for wet asphalt.

REFER TO FIGURE A7-2.

Enter sheet 1 with pressure altitude (A), proceed to the right to temperature (B), down to GW (C), and finally to the right and read uncorrected ground roll distance (D). Enter sheets 2 and 3 with uncorrected ground roll distance (D). Continue to the right to the reported RCR (E) or (I), proceed down to baseline and follow guidelines to wind (F), and then proceed down to baseline and follow guidelines to slope (G). Finally, proceed down to read corrected ground roll distance (H) or (J).

Short field landing with drag chute is shown on sheets 4 through 6.

SAMPLE PROBLEM (SHEET 1).

A. Altitude = 2000 feet
B. Temperature = 40°C
C. GW = 28,000 pounds
D. Uncorrected ground roll distance:
- PRI = 3929 feet
- SEC (3929 × 1.105) = 4342 feet

SAMPLE PROBLEM (SHEET 2).

D. Uncorrected ground roll distance (PRI) = 3929 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 3398 feet
I. RCR = 4
J. Corrected ground roll distance = 8309 feet

SAMPLE PROBLEM (SHEET 3).

D. Uncorrected ground roll distance (SEC) = 4342 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 3732 feet
I. RCR = 8
J. Corrected ground roll distance = 6672 feet

SAMPLE PROBLEM (SHEET 4).

A. Altitude = 2000 feet
B. Temperature = 40°C
C. GW = 28,000 pounds
D. Uncorrected ground roll distance:
- PRI = 2514 feet
- SEC (2514 × 1.06) = 2665 feet

SAMPLE PROBLEM (SHEET 5).

D. Uncorrected ground roll distance (PRI) = 2514 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 2117 feet
I. RCR = 4
J. Corrected ground roll distance = 3883 feet

SAMPLE PROBLEM (SHEET 6).

D. Uncorrected ground roll distance (SEC) = 2665 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 2260 feet
I. RCR = 4
J. Corrected ground roll distance = 5183 feet

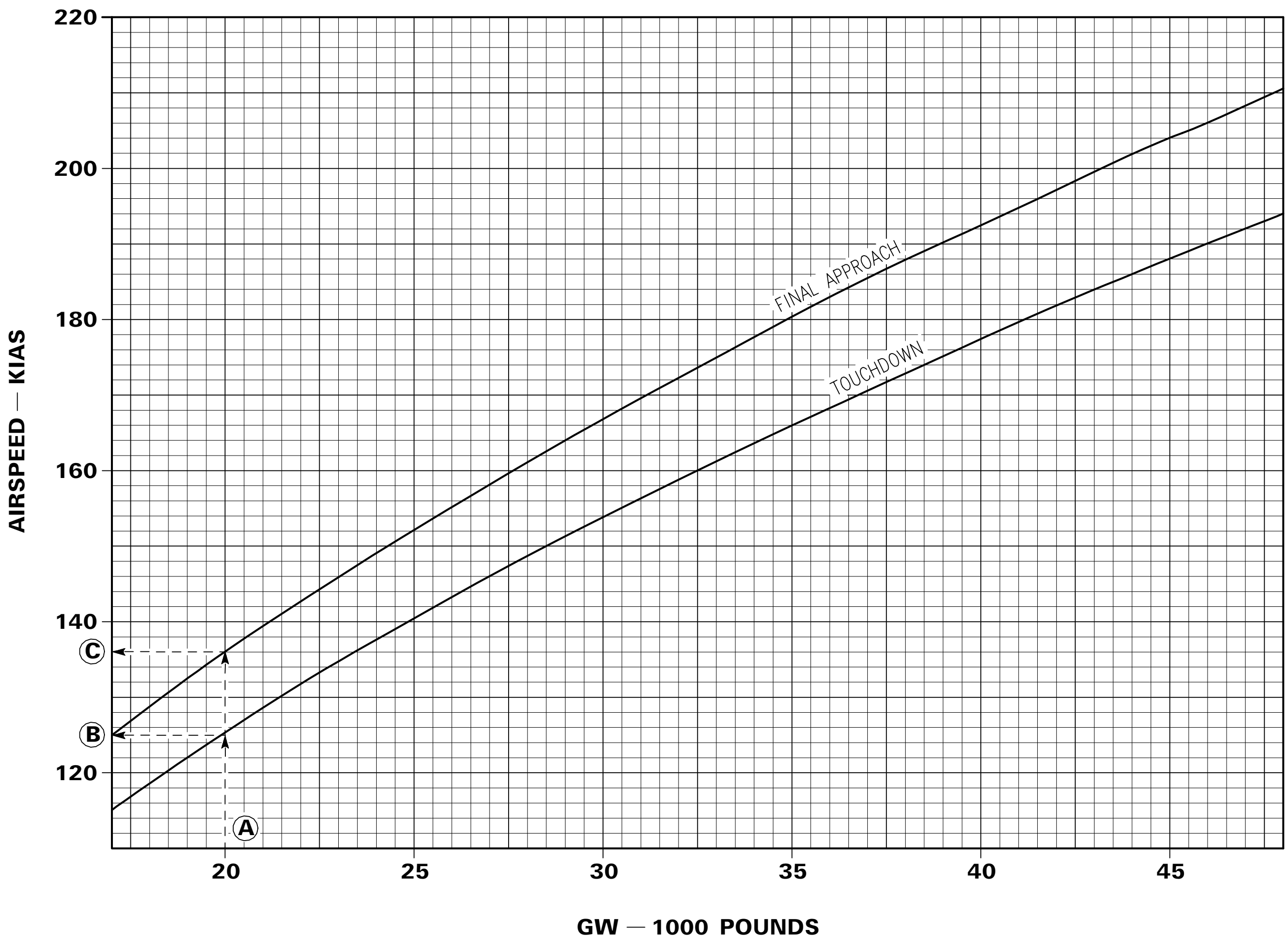
Landing Speed

DATA BASIS ESTIMATED

CONFIGURATION:
- ALL DRAG INDEXES

CONDITIONS:
- ALL TEMPERATURES
- ALL ALTITUDES
- 13 DEGREES AOA (INDEXER ON SPEED)

NOTE:
THE BASELINE AIRSPEEDS ARE BASED ON THE BASIC OPERATING WEIGHT PLUS FULL AMMO. ACTUAL APPROACH AIRSPEED AT 13 DEGREES AOA MAY DIFFER BY +/–5 KNOTS DUE TO VARIATIONS IN AIRCRAFT CG.



1F–16X–1–1–0015B@

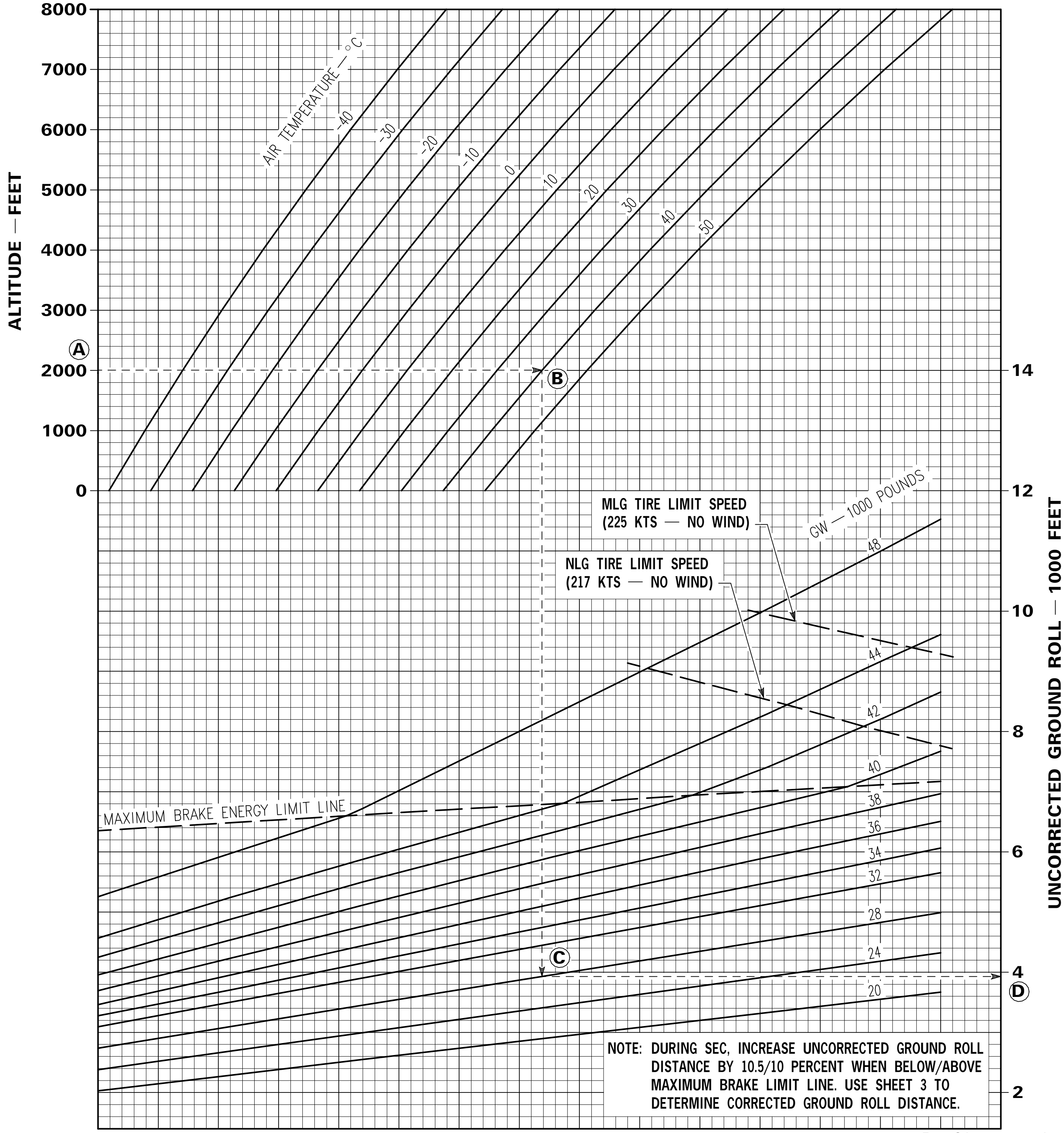
Figure A7-1.

Short Field Landing Distance (Uncorrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- ZERO WIND AND SLOPE
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- DRY CONCRETE RUNWAY



1F–16CJ–1–1–1043A @

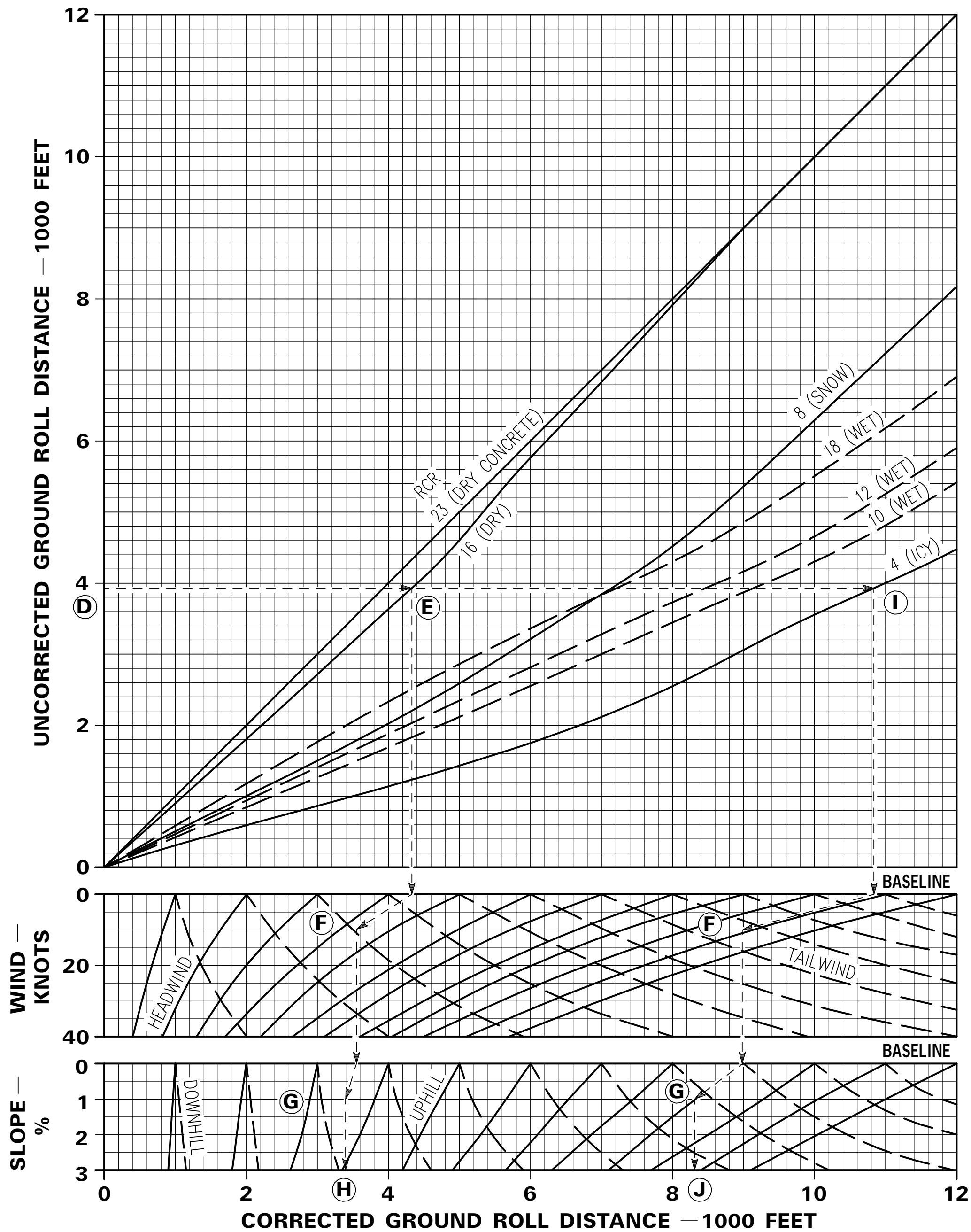
Figure A7-2. (Sheet 1)

Short Field Landing Distance (Corrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 1



1F–16CJ–1–1–1044A @

Figure A7-2. (Sheet 2)

Short Field Landing Distance — SEC (Corrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE

WARNING

ON AN ICY RUNWAY (RCR = 4) WITH SEC, THE STOPPING DISTANCE WITH ZERO HEADWIND EXCEEDS 14,000 FEET.

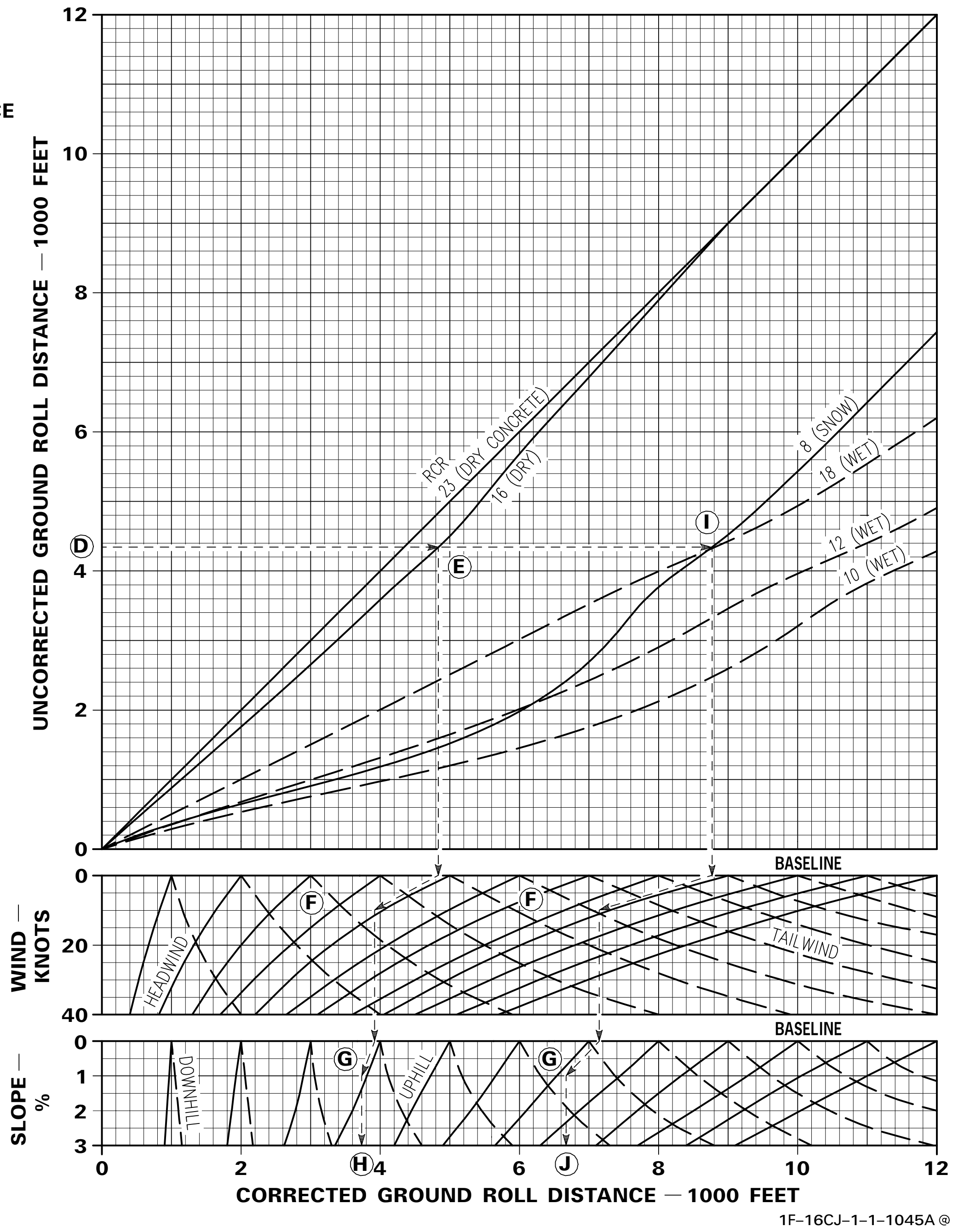


Figure A7-2. (Sheet 3)

Short Field Landing Distance — With Drag Chute (Uncorrected)

DATA BASIS ESTIMATED

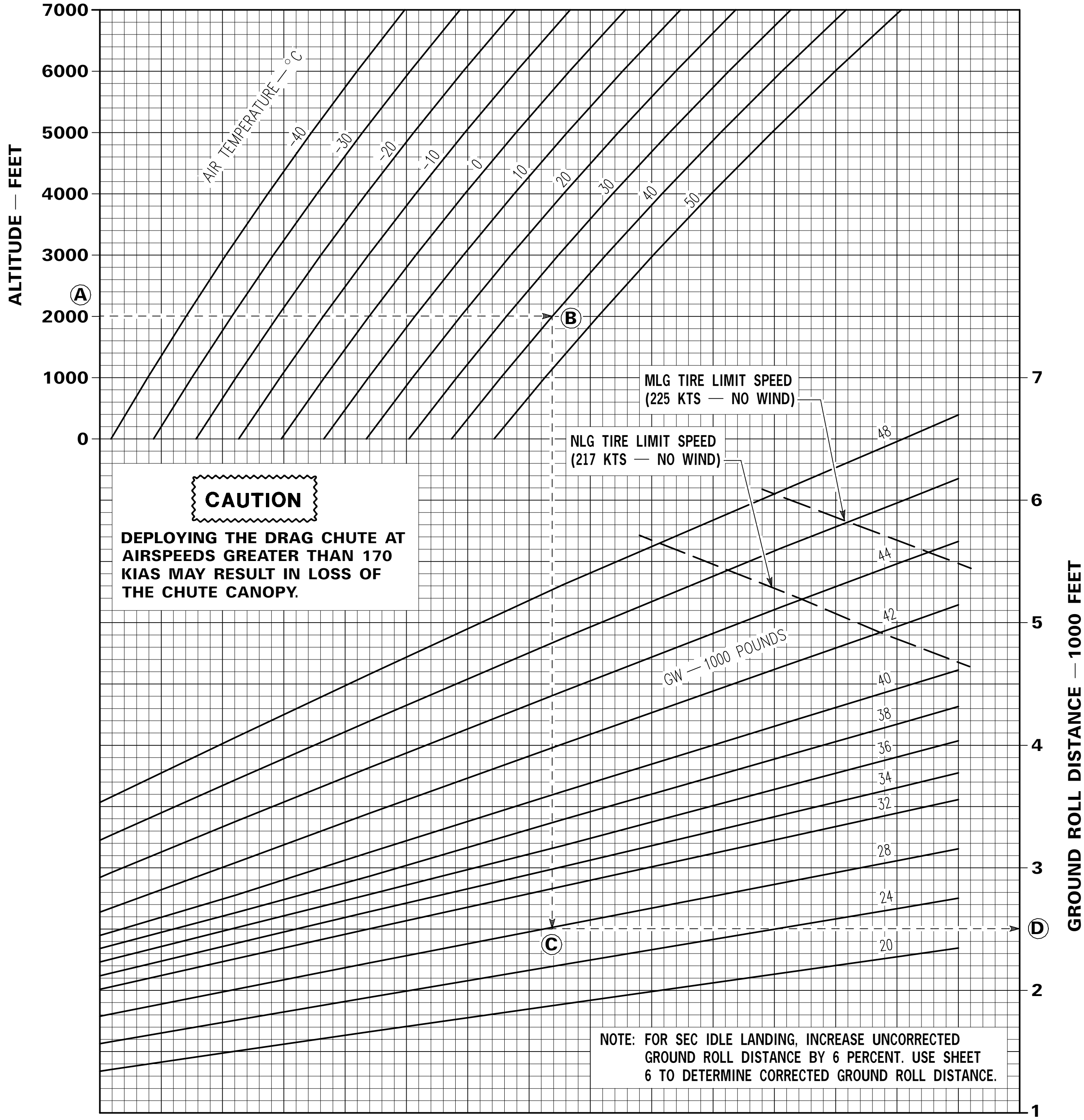
ENGINE F100–PW–229

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:

- TOUCHDOWN AT 13 DEGREES AOA
- ZERO WIND AND SLOPE
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- DRY CONCRETE RUNWAY



GR1F–16CJ–1–1–5046X37@

Figure A7-2. (Sheet 4)

Short Field Landing Distance — With Drag Chute (Corrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:

- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 4

CAUTION

DEPLOYING THE DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

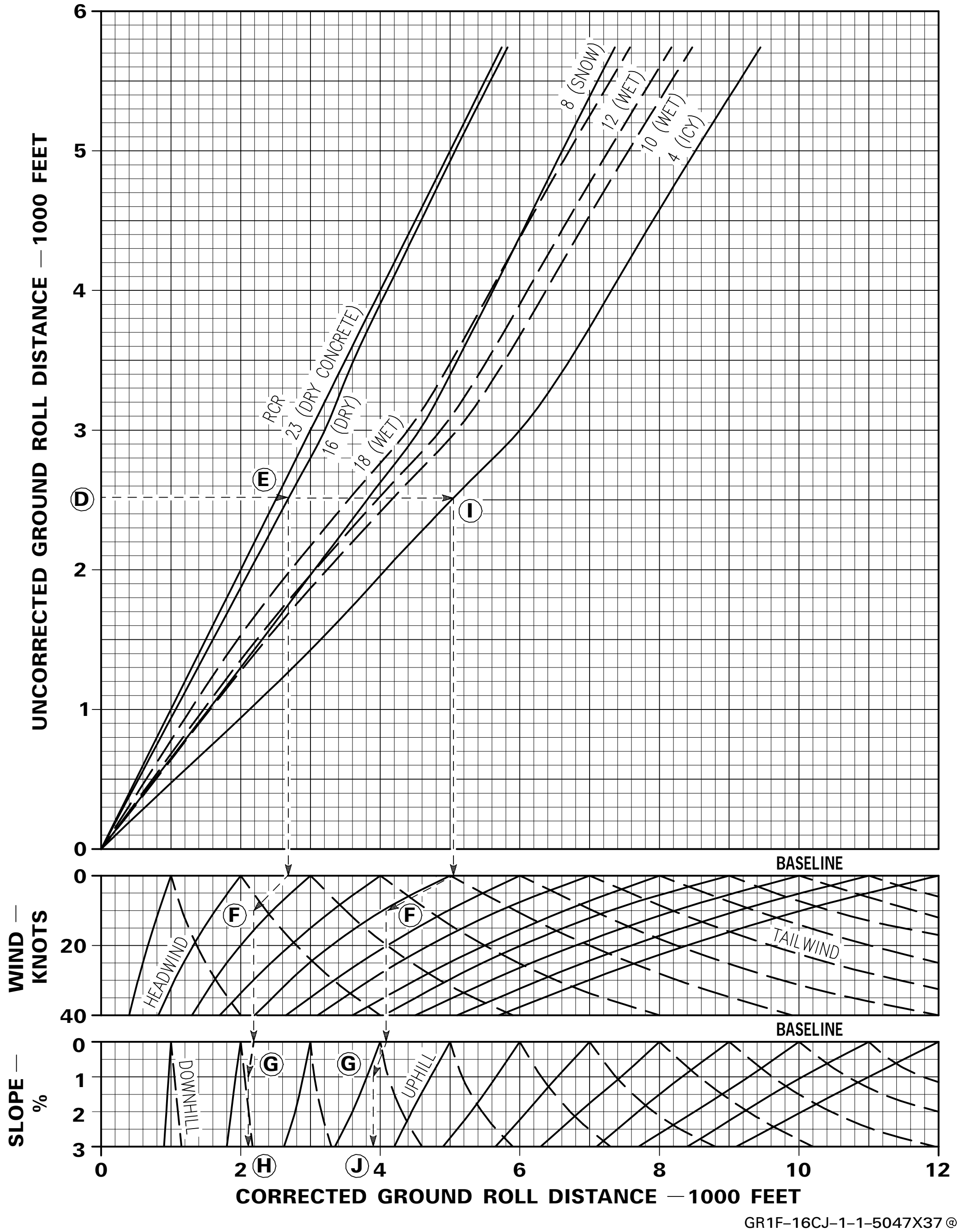


Figure A7-2. (Sheet 5)

Short Field Landing Distance — SEC With Drag Chute (Corrected)

DATA BASIS ESTIMATED | **ENGINE F100–PW–229**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 4

WARNING

ON AN ICY RUNWAY (RCR=4) WITH SEC, THE STOPPING DISTANCE WITH ZERO HEADWIND MAY EXCEED 12,000 FEET.

CAUTION

DEPLOYING THE DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

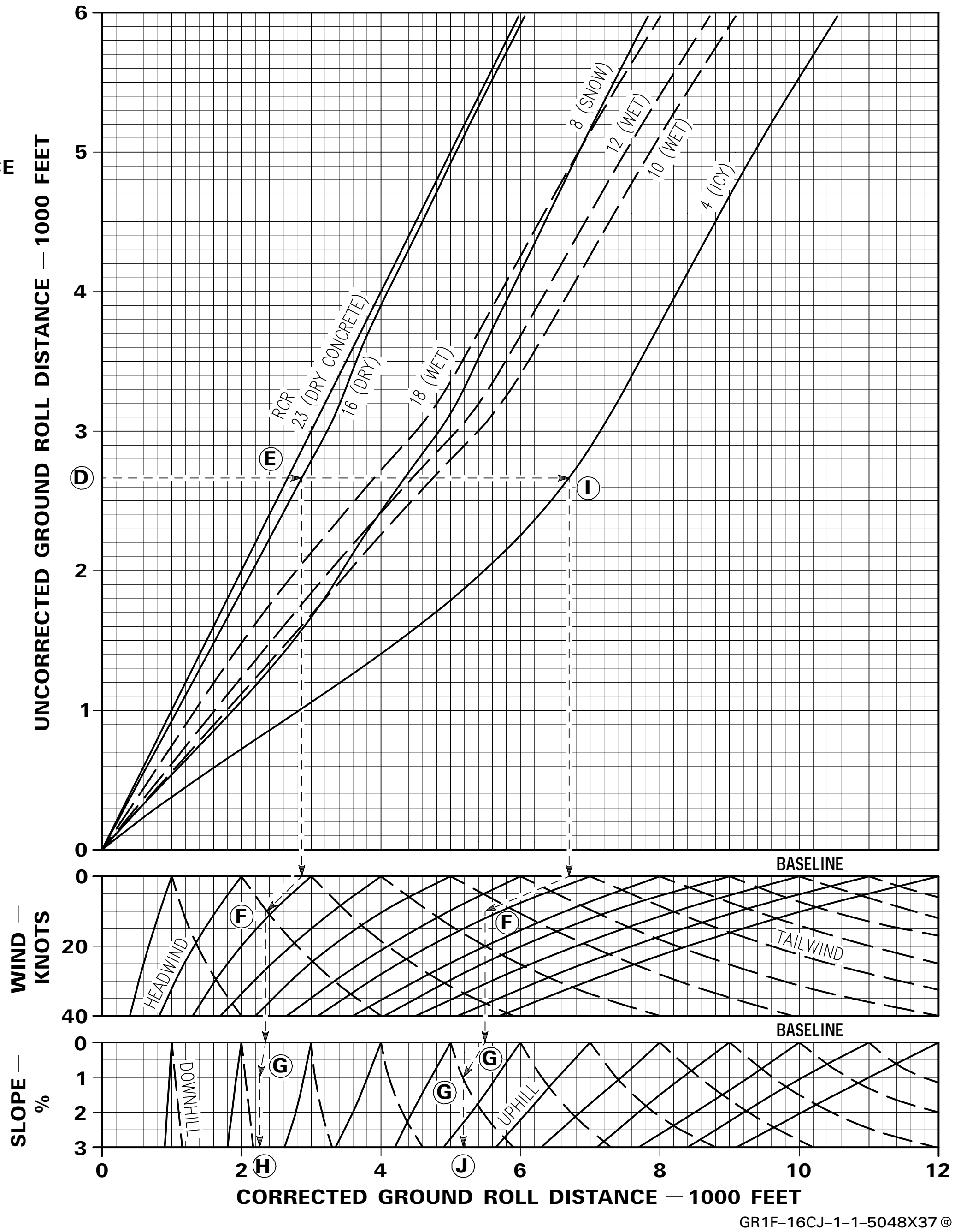


Figure A7-2. (Sheet 6)

PART 8 – COMBAT

TABLE OF CONTENTS

LIST OF CHARTS

COMBAT CEILINGS AND OPTIMUM CRUISE ALTITUDE

Combat ceiling and optimum cruise altitude data is shown in figure A8-1. All data is based on use of optimum cruise mach number. Correction factors to adjust MIL combat ceiling to cruise or service ceilings are given on the chart.

REFER TO FIGURE A8-1.

For standard day, enter upper portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read cruise altitude (C). Enter lower portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read combat ceiling (D).

For MIL cruise ceiling, add 670 feet to MIL combat ceiling. For MIL service ceiling, add 1340 feet to MIL combat ceiling.

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Drag index	=	230
C.	Cruise altitude	=	33,110 feet
D.	MIL combat ceiling (500 fpm)	=	33,510 feet
•	MIL cruise ceiling (300 fpm)	=	34,180 feet
•	MIL service ceiling (100 fpm)	=	34,850 feet

LEVEL FLIGHT COMBAT SPEEDS AND ALTITUDES

Combat speed and altitude envelopes are shown in figure A8-2 (sheets 1 through 4) for MIL and MAX AB. All data shown reflects speed/altitude conditions where 500 fpm climb potential remains at the specified thrust setting.

REFER TO FIGURE A8-2, SHEET 1.

Enter the plot labeled with the appropriate drag index with altitude (A), proceed to the right to GW (B), and then down to read mach number (C). Reverse this process to find maximum altitude.

SAMPLE PROBLEM.

•	Drag index	=	50
A.	Altitude	=	40,000 feet
B.	GW	=	24,000 pounds
C.	Maximum mach:		
	• MIL	=	0.94
	• MAX AB	=	1.87

For nonstandard day, use the adjustments noted in figure A8-3 at or below 30,000 feet. For altitudes above 30,000 feet, nonstandard day operations are not shown since the altitude as well as mach number is affected by temperature changes.

LEVEL FLIGHT COMBAT SPEED

Maximum speed capabilities for MIL and MAX AB during level flight are provided as indicated airspeed in tabular form in figure A8-3. The data is presented as a function of altitude and drag index with temperature effects shown as correction increments. No GW effects are shown because speed capability is not significantly affected by weight in the altitude range shown.

REFER TO FIGURE A8-3.

Enter the table with thrust, altitude, and drag index and read indicated airspeed at standard day temperature. The resulting value is the maximum attainable airspeed in level flight under the given conditions. Temperature corrections are found in the bottom half of figure A8-3. Enter the table with altitude and drag index and read the temperature correction. The correction increments are given for a 20°C deviation from standard. For other temperature deviations, determine ratio of the table values.

SAMPLE PROBLEM.

•	Thrust	=	MIL
•	Altitude	=	15,000 feet
•	Drag index	=	100
•	Maximum indicated airspeed, standard day	=	489 knots
•	Standard day temperature	=	–15°C
•	Ambient temperature	=	–10°C
•	Temperature deviation	=	5°C hot
•	Indicated airspeed for +20°C temperature deviation at 15,000 feet and DI = 100	=	–11 knots
•	Maximum indicated airspeed for ambient temperature of –10°C	=	489 – (11 × 5/20) = 486 knots

FUEL FLOW (MIL AND MAX AB)

Fuel flow data for MIL and MAX AB thrust is given in figure A8-4. The data may be used to estimate fuel consumption at combat conditions. For instance, a MAX AB turn at 1.6 mach and 30,000 feet altitude consumes 54,340 pounds of fuel per hour or (54,340 ÷ 60) = 906 pounds of fuel every minute.

MIL ACCELERATION

MIL acceleration performance from 200 KIAS to combat speed is given in figures A8-5, A8-6, A8-7, and A8-8 for sea level and 10,000, 20,000, and 30,000 feet altitude, respectively. The data in these charts covers the subsonic and transonic flight region for drag indexes up to 250 and is presented as a function of altitude, drag index, and GW with temperature effects shown as factors.

REFER TO FIGURE A8-5.

To find the time, distance, and fuel consumed in a constant altitude acceleration, enter the table with drag index, GW, and initial airspeed. Then read time/distance/fuel consumed. Next, enter the table with the final airspeed and read time/distance/fuel consumed. The difference between the two sets of data is then the time/distance/fuel consumed for the acceleration. Temperature effects factors are found on the right side of each chart. Multiply the standard day time/distance/fuel consumed initial and final conditions by their respective factors to get initial and final

conditions for ±20°C deviation from standard. To compute the time/distance/fuel consumed for other temperatures, simply ratio the difference between standard day values and ±20°C values for the particular temperature deviation. The difference between initial and final conditions is the time/distance/fuel consumed in acceleration for nonstandard day temperature.

SAMPLE PROBLEM.

A.	Altitude	=	SL
B.	Drag index	=	0
C.	GW	=	20,000 pounds
D.	Standard day temperature	=	15°C
E.	Ambient temperature	=	22°C
F.	Temperature deviation	=	7°C hot
G.	Initial airspeed	=	300 KIAS
H.	Final airspeed	=	600 KIAS

FIND FUEL CONSUMED:

I.	Fuel at initial condition (STD)	=	31 pounds
J.	Temperature effect factor at +20°C	=	1.08
K.	Fuel at initial condition is 1.08 × 31 for +20°C	=	33.5 pounds
L.	Fuel at initial condition for 7°C is 31 + (2.5 × 7/20)	=	31.9 pounds
M.	Fuel at final conditions (STD)	=	157 pounds
N.	Temperature effect factor at +20°C	=	1.19
O.	Fuel at final condition is 1.19 × 157 for +20°C	=	186.8 pounds
P.	Fuel at final condition for 7°C is 157 + (29.8 × 7/20)	=	167.4 pounds
Q.	Fuel consumed (167.4 – 31.9)	=	135.5 pounds

The above method also applies to computing time and range for the acceleration.

MAX AB ACCELERATION

MAX AB acceleration performance from 200 KIAS to combat speed is given in figures A8-9, A8-10, A8-11, A8-12, and A8-13 for sea level and 10,000, 20,000, 30,000, and 40,000 feet altitude, respectively. The data in these charts covers the subsonic, transonic, and supersonic flight region for drag indexes up to 250 and is presented as a function of altitude, drag index, and GW with temperature effects shown as factors. Refer to MIL ACCELERATION for procedures.

TURN PERFORMANCE

Figures A8-14 through A8-64 contain constant altitude and drag index turn performance data plotted versus mach for lines of constant energy rate (Ps). Lines of load factor and turn radius are superimposed on each chart. Correction insets containing GW and temperature effects are also included on each chart. Altitudes range from sea level to 30,000 feet for MIL standard day thrust and sea level to 50,000 feet for MAX AB standard day thrust. Both MIL and MAX AB thrust charts contain drag indexes of 0 through 200 and varying GW's. The boundaries of the data are defined by the CAT I or CAT III AOA limiters, load factor limits, maximum aft stick limits, maximum airspeed (Ps = 0 at 1g), and limit airspeed. Within these boundaries, the data defines how much Ps remains at any load factor, mach, or turn rate. On figure A8-37, for instance, the Ps lines show that 0.9 mach is an ideal speed for maneuvering and increasing energy (climbing) simultaneously. At 9g, Ps is almost 470 fps or an instantaneous rate of climb of almost 28,200 fpm. At the same load factor, however, turn radius can be reduced by making the turn at 0.7 mach while still maintaining airspeed and altitude (Ps = 0). The quickest turn occurs at about 8g, 0.54 mach. Note, however, Ps is less than 0 (Ps < –500 fps) indicating either speed or altitude must be decreased to maintain the turn. In this case, the turn condition is limited by the CAT I limiter. Speed decays at constant altitude, and load factor decreases along the CAT I limit line until Ps = 0 is reached at about 3.1g, 0.31 mach. The effects of varying GW's or nonstandard temperatures may also be included, as in the example below. A close study of the turn performance charts assists in forming a picture of the interrelationships between maneuverability, speed, altitude, energy rate, etc.

REFER TO FIGURE A8-37.

Enter the chart with mach number (A), proceed vertically to desired Ps (B), and proceed horizontally to read turn rate (C). Enter GW Effect inset at desired GW (D), proceed vertically to mach number (A), and then left horizontally to read Δ turn rate (E). Enter Temperature Effect inset at temperature deviation from standard day value (F), proceed vertically to mach number (A), and then horizontally to read Δ turn rate (G). Combine (E), (G), and (C) to obtain a corrected turn rate (H). With the corrected turn rate, proceed horizontally back to mach number (A) to define the new location of the Ps line. Read the turn radius (I). Enter Radius Temperature Effect inset at standard temperature deviation value (F); proceed vertically to line and then horizontally to read turn radius factor (J). Multiply turn radius and turn radius factor to obtain corrected turn radius (K).

NOTE

The accuracy of GW and temperature corrections to turn rate is considerably degraded when large (steep) Ps line slopes are encountered.

SAMPLE PROBLEM.

A.	Mach number	=	0.60
B.	Ps	=	0 (level turn)
C.	Turn rate	=	20.5 degrees/second
D.	GW	=	24,000 pounds
E.	Δ Turn rate	=	–2.0 degrees/second
F.	Temp dev from std day	=	+20°C
G.	Δ Turn rate	=	–2.1 degrees/second
H.	Corrected turn rate = 20.5 – 2.0 – 2.1	=	16.4 degrees/second (at Ps = 0)
I.	Turn radius	=	1873 feet
J.	Turn radius factor	=	1.069
K.	Corrected turn radius 1873 feet × 1.069	=	2003 feet

DECELERATION

Level 1g deceleration performance is shown in figure A8-65 for 20,000, 30,000, and 40,000 feet altitude, respectively. Sufficient drag index lines are provided to cover most supersonic loadings plus a line representing speedbrakes open at aircraft drag index = 0.

REFER TO FIGURE A8-65.

Enter top portion of chart with initial mach number (A), proceed vertically to drag index (B), proceed horizontally to the right to weight baseline and follow guidelines to GW (C), and finally proceed horizontally to the right to read fuel consumed (D). Repeat this process in the remaining portions of the chart to determine distance (E) and time (F) to decelerate. Repeat the entire procedure substituting final mach for initial mach and subtract the result from the first set of data to obtain fuel used, distance, and time to decelerate from initial to final mach.

SAMPLE PROBLEM (20,000 FEET).

A.	Initial mach	=	1.5
B.	Drag index*	=	20
C.	GW	=	22,000 pounds
D.	Fuel used	=	96 pounds
E.	Distance	=	16.4 nm
F.	Time	=	1.75 minutes

* Example drag index

The above data is for a deceleration from 1.5 to 0.6 mach. If the deceleration is stopped at 0.7 mach:

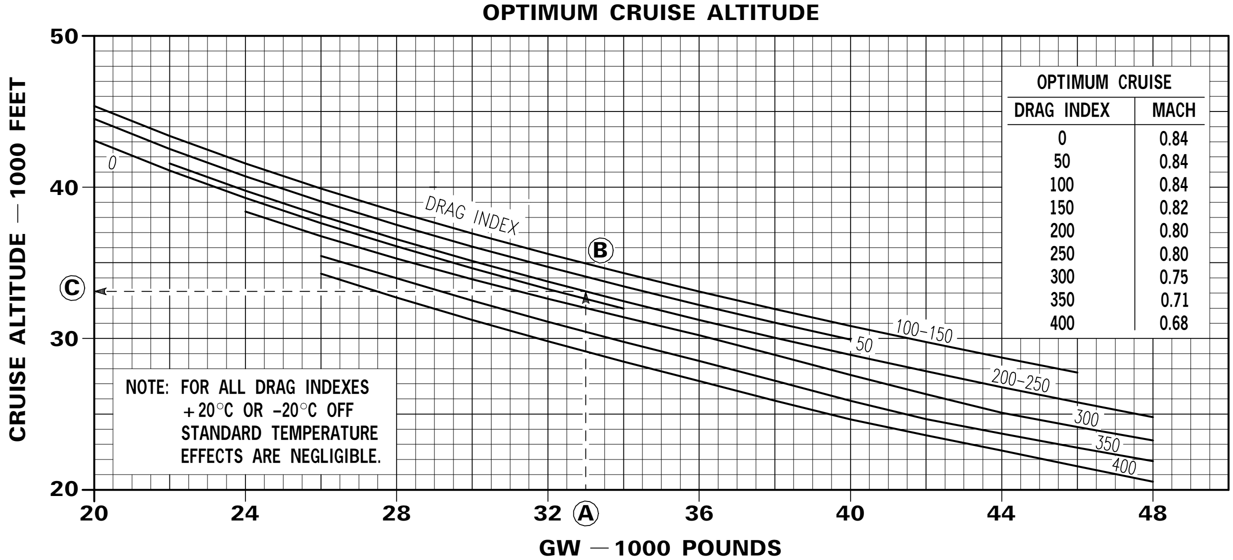
G.	Fuel used	=	96 – 6.6 = 89.4 pounds
H.	Distance	=	16.4 – 2.9 = 13.5 nm
I.	Time	=	1.75 – 0.43 = 1.32 minutes

Combat Ceilings and Optimum Cruise Altitude

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONDITIONS:

- STANDARD DAY
- OPTIMUM CRUISE MACH NUMBER



OPTIMUM CRUISE	
DRAG INDEX	MACH
0	0.84
50	0.84
100	0.84
150	0.82
200	0.80
250	0.80
300	0.75
350	0.71
400	0.68

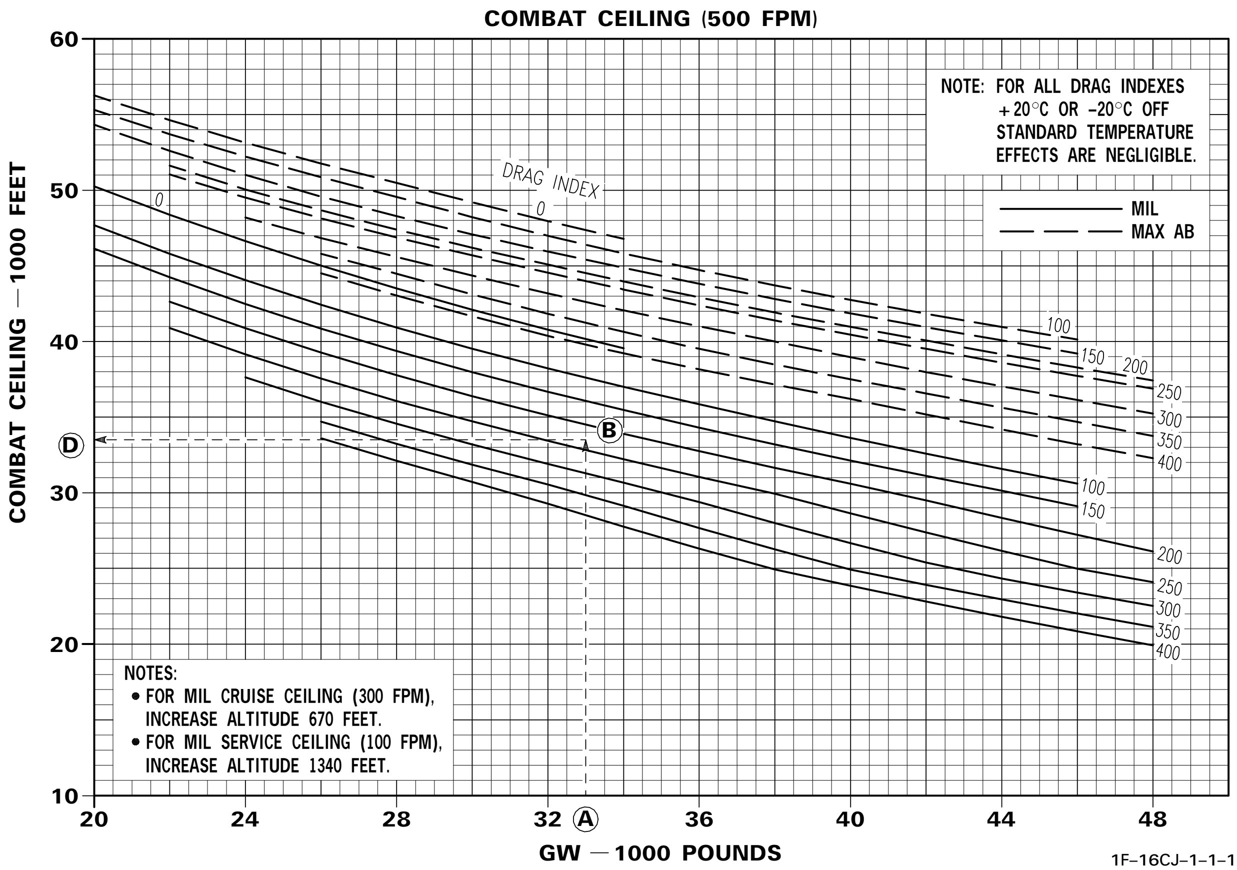


Figure A8-1.

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

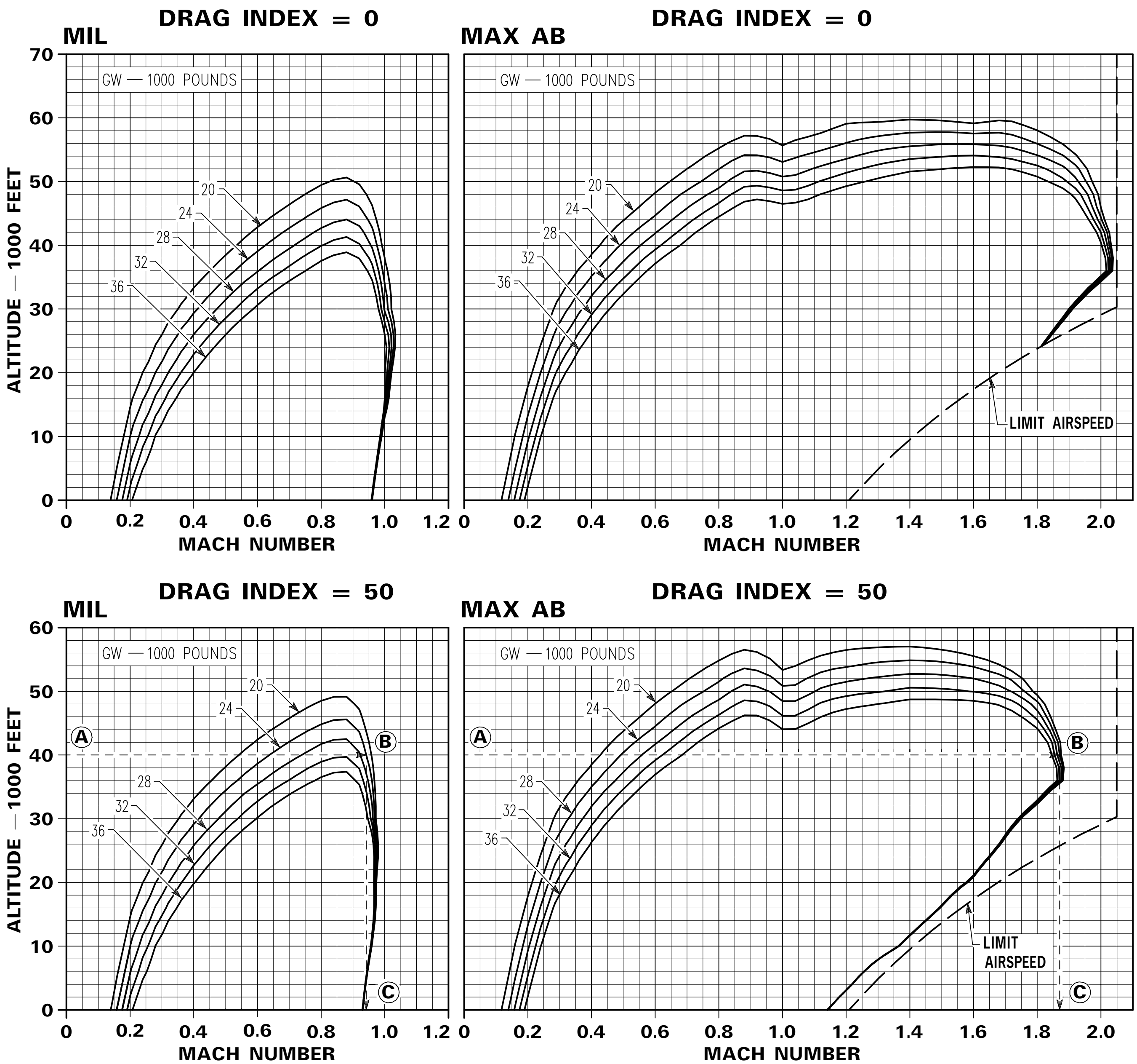
DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

NOTES:

- FOR NONSTANDARD DAY, REFER TO FIGURE A8–3 TO ADJUST AIR–SPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIR–SPEED LIMITATIONS.

CONDITIONS:

- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST



1F–16CJ–1–1–1047A @

Figure A8-2. (Sheet 1)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

NOTES:

- FOR NONSTANDARD DAY, REFER TO FIGURE A8–3 TO ADJUST AIR– SPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

CONDITIONS:

- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST

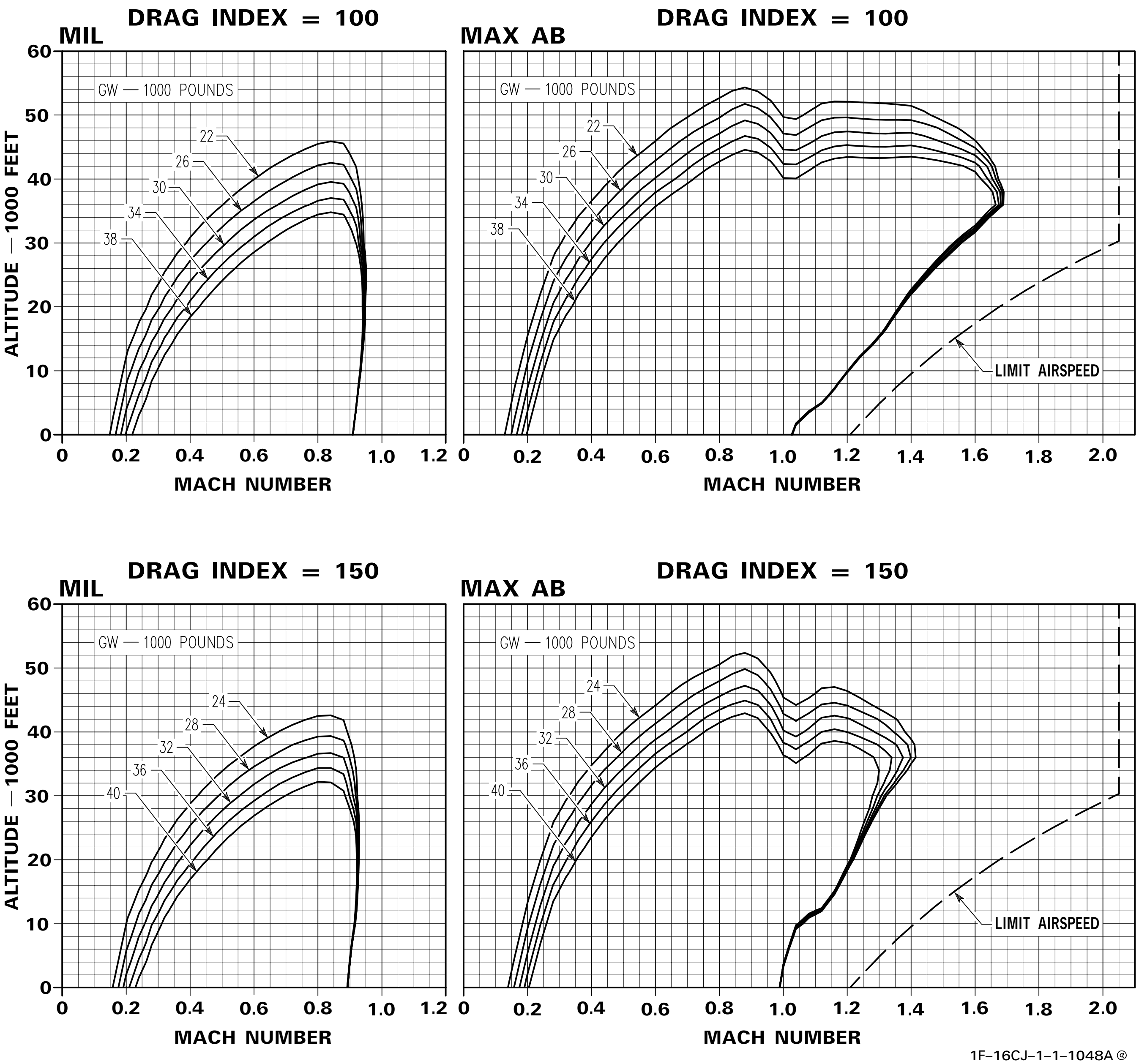


Figure A8-2. (Sheet 2)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

NOTES:

- FOR NONSTANDARD DAY, REFER TO FIGURE A8–3 TO ADJUST AIRSPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

CONDITIONS:

- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST

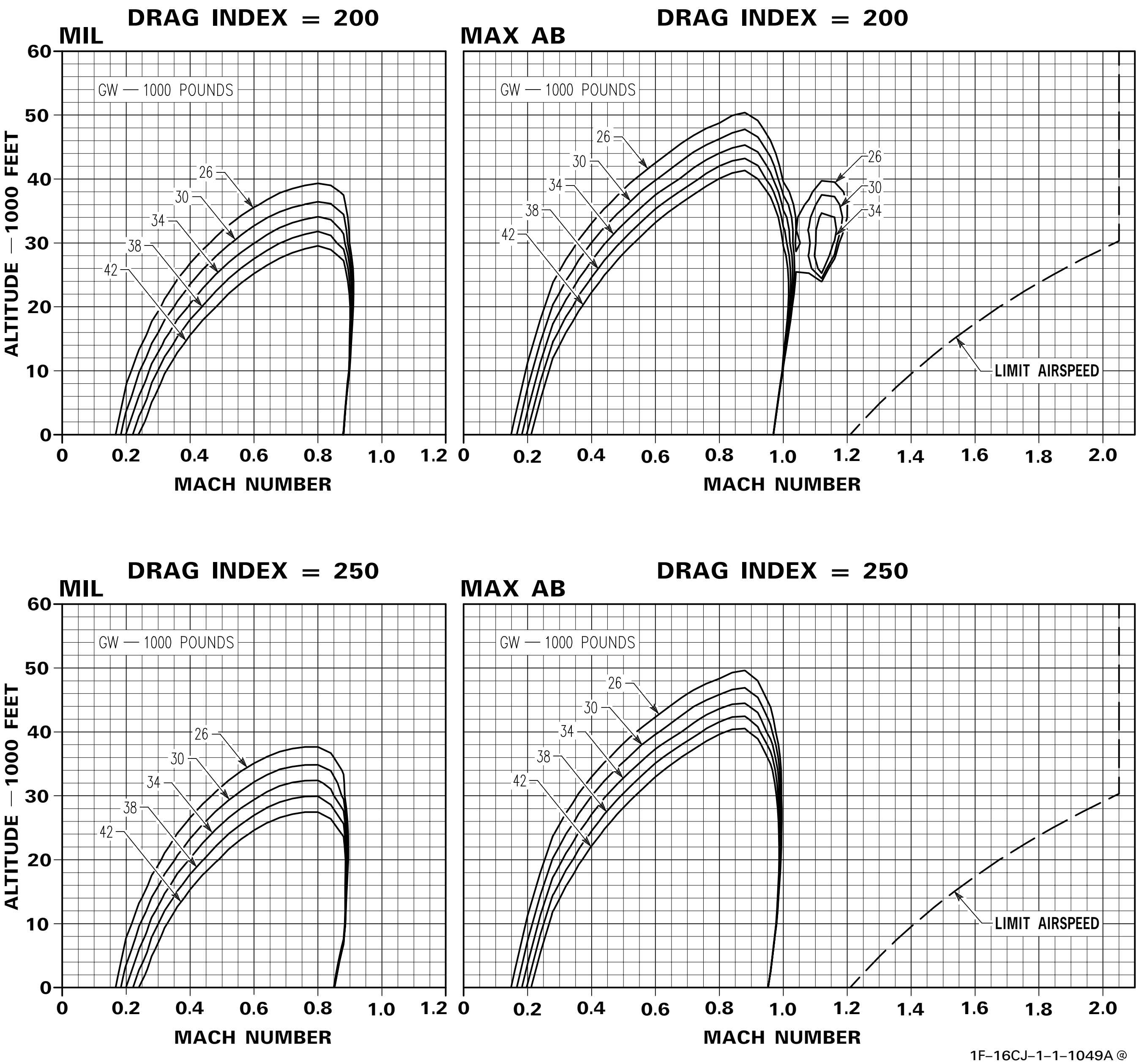


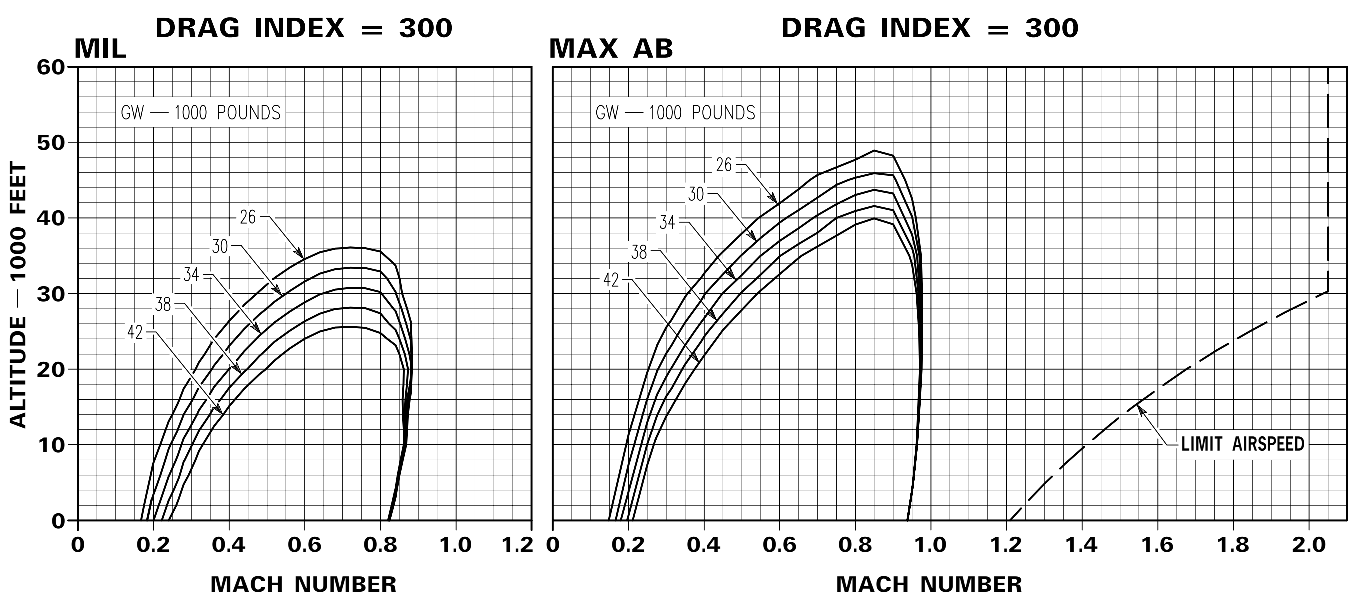
Figure A8-2. (Sheet 3)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

NOTES:
- FOR NONSTANDARD DAY, REFER TO FIGURE A8–3 TO ADJUST AIRSPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

CONDITIONS:
- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST



1F–16CJ–1–1–1050A

Figure A8-2. (Sheet 4)

Level Flight Combat Speed (MIL/MAX AB)

DATA BASIS FLIGHT TEST

CONDITIONS:
- **ALL GW'S**

ENGINE F100-PW-229

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

MIL

STANDARD TEMPERATURE °C	ALTITUDE FEET	INDICATED AIRSPEED – KNOTS						
		DRAG INDEX 0	50	100	150	200	250	300
+15	SL	634	616	603	592	581	565	546
+5	5,000	597	578	564	554	544	534	517
−5	10,000	559	541	527	517	509	499	489
−15	15,000	523	503	489	477	468	460	448
−25	20,000		460	447	437	429	424	
−35	25,000		420	407	396			
−44	30,000							

Δ INDICATED AIRSPEED – KNOTS

*	SL	1/−14	1/−14	1/−15	3/−22	3/−35	6/−41	10/−42
	5,000	8/−15	9/−14	9/−12	9/−15	11/−23	13/−34	22/−36
	10,000	23/−14	11/−14	9/−12	7/−13	5/−17	8/−23	7/−30
	15,000	13/−16	4/−11	3/−11	3/−9	2/−11	3/−16	5/−22
	20,000		2/−8	1/−8	0/−7	0/−7	−1/−12	
	25,000		−1/−6	−1/−5	0/−3			
	30,000							

MAX AB

STANDARD TEMPERATURE °C	ALTITUDE FEET	INDICATED AIRSPEED – KNOTS						
		DRAG INDEX 0	50	100	150	200	250	300
+15	SL	**800	756	680	654	641	631	621
+5	5,000	**800	761	692	619	603	593	584
−5	10,000	**800	776	686	594	565	554	545
−15	15,000	**800	773	684	611	525	512	503
−25	20,000	**800	758	661	587	486	470	462
−35	25,000	795	732	641			427	420
−44	30,000	755	698				385	378

Δ INDICATED AIRSPEED – KNOTS

*	SL	**0/**0	10/−49	5/−21	3/−11	3/−11	2/−12	3/−10
	5,000	**0/−8	14/−63	18/−72	13/−18	6/−14	5/−14	5/−13
	10,000	**0/−8	**24/−88	35/−95	70/−32	18/−15	8/−14	7/−13
	15,000	**0/−29	**27/−93	57/−86	56/−85	78/−14	8/−11	7/−9
	20,000	**0/−53	**42/−100	101/−79	64/−95	90/−15	6/−8	4/−7
	25,000	**0/−77	**68/−93	104/−81			3/−6	2/−7
	30,000	**45/−72	82/−78				3/−5	2/−5

* **TEMPERATURE DEVIATION FROM STANDARD = −20°C/+20°C.**
** **LIMIT AIRSPEED**

Figure A8-3.

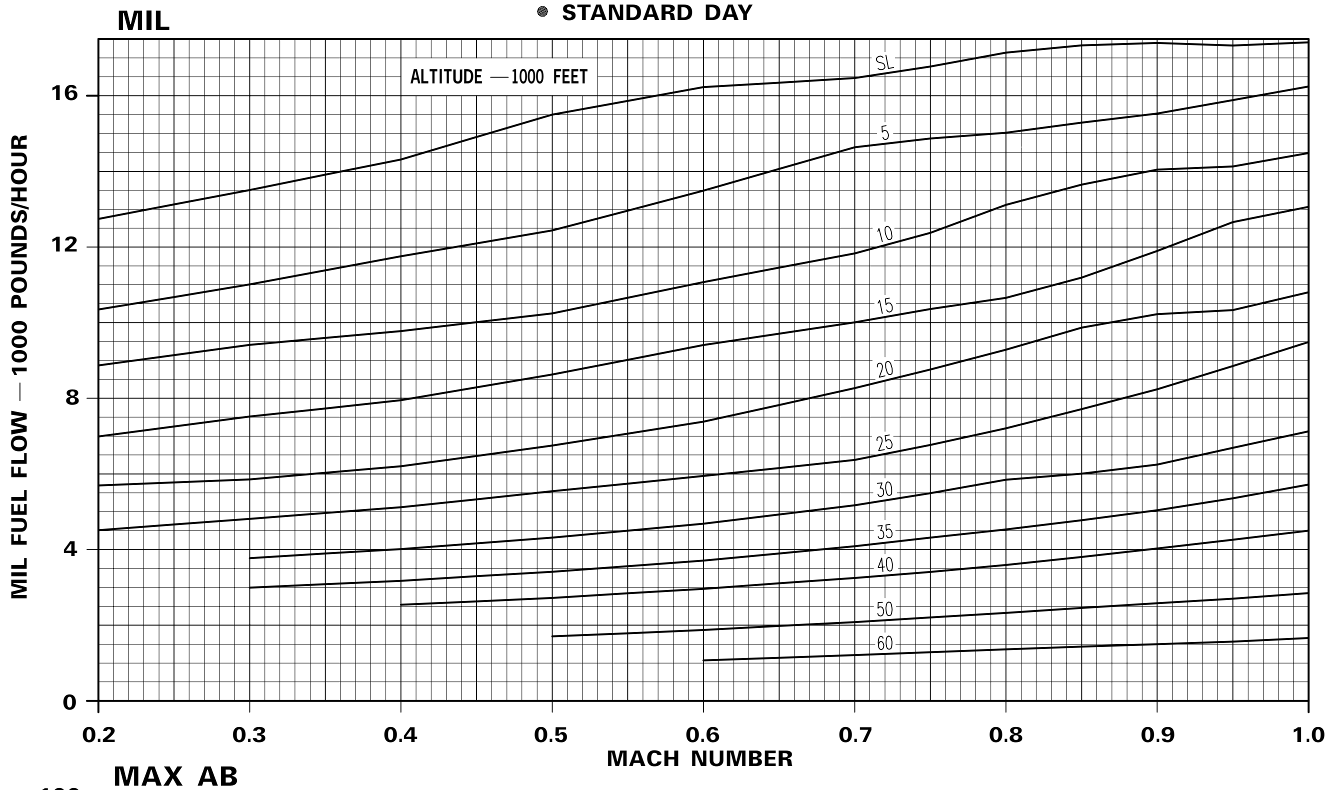
Fuel Flow (MIL/MAX AB)

DATA BASIS FLIGHT TEST

CONDITIONS:

- STANDARD DAY

ENGINE F100–PW–229



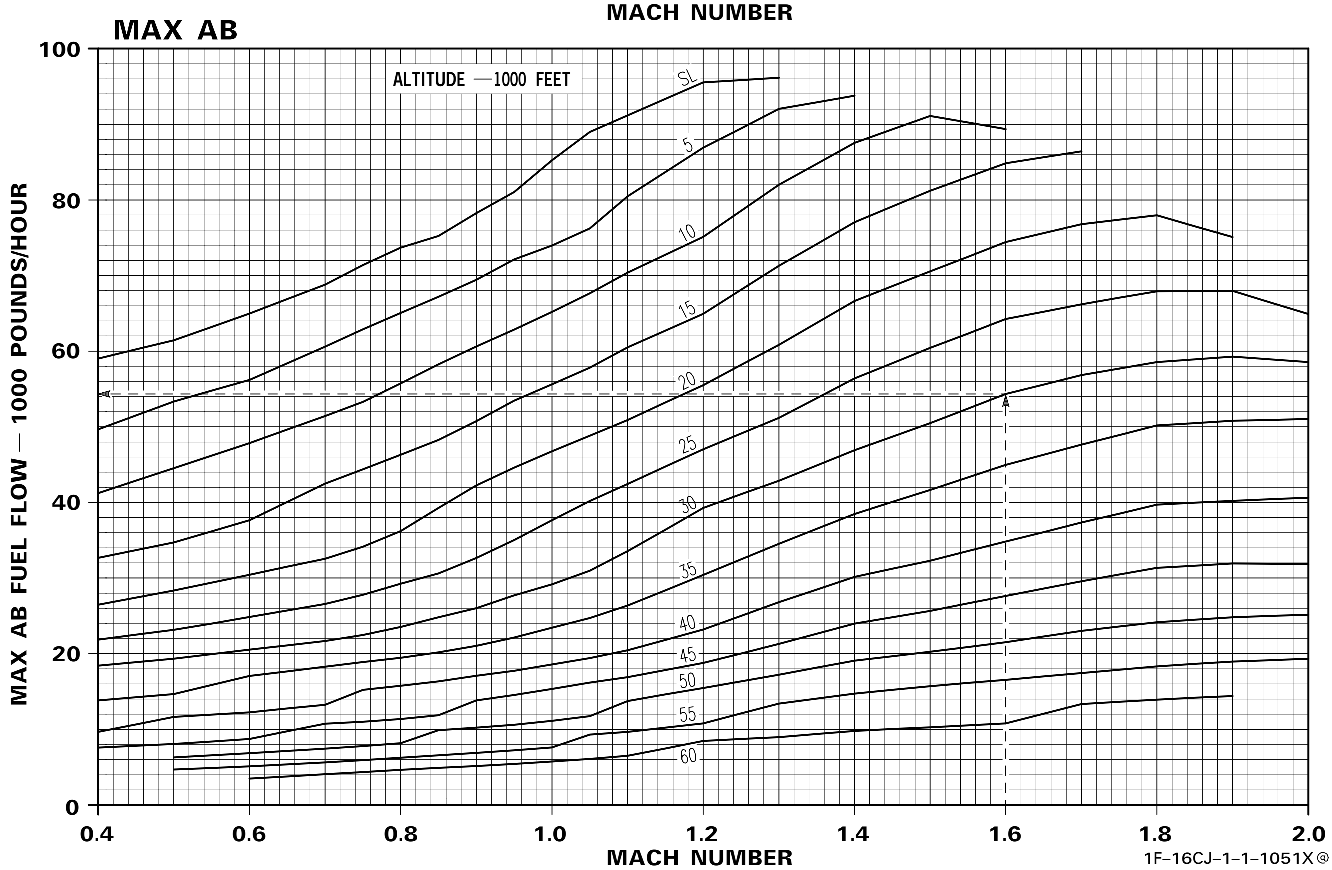


Figure A8-4.

MIL Accelerations — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.2/15	5/0.3/19	6/0.4/23	7/0.4/27	9/0.5/33	1.15/1.19/1.08	0.95/0.91/0.93
	300	0.45	8/0.5/31	10/0.7/37	11/0.8/45	14/0.9/54	16/1.1/63	1.17/1.21/1.08	0.94/0.91/0.93
	350	0.53	12/0.9/47	14/1.1/57	17/1.3/69	20/1.5/81	23/1.8/95	1.19/1.24/1.08	0.94/0.91/0.93
	400	0.60	16/1.3/64	19/1.6/78	23/1.9/93	27/2.2/110	31/2.5/128	1.21/1.26/1.09	0.93/0.89/0.93
	450	0.68	20/1.8/83	24/2.2/101	28/2.6/120	33/3.0/140	39/3.5/163	1.23/1.29/1.10	0.91/0.87/0.93
	500	0.76	24/2.4/104	29/2.9/126	35/3.4/149	41/4.0/174	47/4.6/201	1.25/1.31/1.12	0.89/0.85/0.92
	550	0.83	29/3.1/127	35/3.8/155	42/4.4/183	49/5.1/213	56/5.9/244	1.29/1.36/1.14	0.88/0.84/0.91
	600	0.91	35/4.1/157	43/4.9/190	51/5.8/225	59/6.7/261	67/7.7/299	1.35/1.44/1.19	0.89/0.85/0.91
	CMBT SPD KIAS/MACH		56/7.6/256	66/9.0/303	77/10.4/351	87/11.7/399	99/13.1/449	1.24/1.27/1.09	0.90/0.87/0.91
			635/0.96	635/0.96	635/0.96	634/0.96	634/0.96	0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.2/15	5/0.3/19	6/0.4/23	7/0.4/28	9/0.5/33	1.15/1.19/1.08	0.95/0.91/0.93
	300	0.45	8/0.5/31	10/0.7/38	12/0.8/46	14/1.0/55	16/1.1/64	1.17/1.21/1.08	0.94/0.91/0.93
	350	0.53	12/0.9/48	15/1.1/59	17/1.3/70	21/1.6/83	24/1.8/97	1.19/1.24/1.09	0.94/0.91/0.93
	400	0.60	16/1.3/66	20/1.6/81	23/1.9/96	27/2.3/113	32/2.6/132	1.22/1.27/1.10	0.93/0.89/0.93
	450	0.68	20/1.9/86	25/2.3/105	30/2.7/125	35/3.1/146	40/3.6/169	1.24/1.30/1.11	0.91/0.87/0.92
	500	0.76	25/2.5/109	31/3.0/133	37/3.6/157	43/4.2/184	49/4.8/212	1.27/1.34/1.13	0.89/0.84/0.92
	550	0.83	31/3.4/137	38/4.1/166	45/4.8/196	52/5.6/228	60/6.4/262	1.32/1.41/1.17	0.87/0.83/0.91
	600	0.91	39/4.7/177	48/5.7/214	56/6.7/252	65/7.7/293	75/8.8/335	1.53/1.69/1.35	0.87/0.83/0.90
	CMBT SPD KIAS/MACH		55/7.3/251	65/8.6/298	76/9.9/345	86/11.3/393	97/12.6/443	1.26/1.29/1.10	0.90/0.86/0.91
			616/0.93	616/0.93	616/0.93	616/0.93	616/0.93	0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/17	6/0.3/21	7/0.4/26	8/0.5/31	10/0.6/37	1.15/1.19/1.08	0.95/0.91/0.93
	300	0.45	9/0.6/35	11/0.8/43	13/0.9/51	15/1.1/61	18/1.3/72	1.18/1.22/1.09	0.94/0.91/0.93
	350	0.53	13/1.0/55	16/1.2/66	19/1.5/78	23/1.7/92	27/2.0/108	1.20/1.25/1.10	0.94/0.91/0.93
	400	0.60	18/1.5/76	22/1.8/91	26/2.2/108	30/2.5/126	35/2.9/146	1.23/1.29/1.11	0.93/0.89/0.93
	450	0.68	24/2.2/100	28/2.6/120	33/3.0/141	39/3.5/164	45/4.0/189	1.26/1.32/1.13	0.90/0.86/0.92
	500	0.76	30/3.0/128	36/3.5/153	42/4.2/180	49/4.8/209	56/5.5/240	1.30/1.37/1.16	0.88/0.83/0.91
	550	0.83	37/4.1/164	45/4.9/196	52/5.7/230	61/6.6/266	69/7.5/304	1.39/1.49/1.23	0.86/0.82/0.89
	600	0.91	53/6.6/239	63/7.8/284	73/9.1/331	84/10.4/381	96/11.8/434		0.85/0.80/0.87
	CMBT SPD KIAS/MACH		60/7.8/275	71/9.2/323	82/10.5/373	93/11.9/424	105/13.3/477	1.38/1.44/1.20	0.88/0.85/0.90
			603/0.91	603/0.91	603/0.91	603/0.91	603/0.91	0.98/0.98	1.00/1.00

Figure A8-5. (Sheet 1)

MIL Accelerations — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/19	6/0.4/24	7/0.5/29	9/0.6/34	11/0.7/42	1.16/1.20/1.09	0.94/0.91/0.92
	300	0.45	10/0.7/40	12/0.8/48	14/1.0/57	17/1.2/67	20/1.4/80	1.18/1.23/1.09	0.94/0.91/0.92
	350	0.53	15/1.2/62	18/1.4/74	22/1.6/87	25/1.9/102	30/2.2/120	1.21/1.26/1.10	0.94/0.90/0.92
	400	0.60	21/1.7/86	25/2.1/103	29/2.4/121	34/2.8/141	39/3.3/163	1.24/1.30/1.12	0.92/0.89/0.92
	450	0.68	27/2.5/115	32/2.9/136	38/3.4/159	44/4.0/185	50/4.6/213	1.28/1.35/1.15	0.90/0.86/0.92
	500	0.76	35/3.5/150	41/4.1/177	48/4.8/207	55/5.5/239	64/6.3/274	1.34/1.42/1.19	0.87/0.82/0.90
	550	0.83	45/5.0/199	53/5.9/235	62/6.8/273	71/7.8/314	81/8.9/358	1.52/1.66/1.35	0.85./0.80/0.88
	CMBT SPD KIAS/MACH		72/9.3/327	83/10.7/379	95/12.2/433	108/13.7/489	121/15.2/548	1.45/1.51/1.26	0.87/0.83/0.89
			593/0.90	593/0.90	592/0.90	592/0.90	592/0.89	0.96/0.96	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	6/0.4/22	7/0.4/26	8/0.5/32	10/0.6/38	12/0.8/47	1.17/1.21/1.10	0.94/0.91/0.92
	300	0.45	11/0.8/44	14/0.9/53	16/1.1/63	19/1.3/75	23/1.6/89	1.19/1.24/1.10	0.94/0.91/0.92
	350	0.53	17/1.3/69	20/1.6/83	24/1.8/97	28/2.1/114	33/2.5/133	1.22/1.27/1.11	0.94/0.90/0.92
	400	0.60	24/2.0/98	28/2.3/116	33/2.7/135	38/3.2/157	44/3.6/182	1.26/1.32/1.13	0.92/0.89/0.92
	450	0.68	31/2.9/131	36/3.4/155	42/3.9/180	49/4.5/208	57/5.1/240	1.31/1.38/1.17	0.89/0.85/0.91
	500	0.76	41/4.1/176	48/4.8/206	55/5.6/239	64/6.4/275	73/7.3/315	1.40/1.49/1.25	0.85/0.80/0.89
	550	0.83	56/6.3/247	65/7.4/289	75/8.5/333	86/9.7/382	98/11.0/435		0.82/0.77/0.85
	CMBT SPD KIAS/MACH		87/11.4/401	100/13.0/459	114/14.6/520	128/16.4/586	144/18.3/656	1.27/1.28/1.10	0.82/0.78/0.84
			582/0.88	582/0.88	582/0.88	581/0.88	581/0.88	0.94/0.94	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	6/0.4/22	7/0.4/27	8/0.5/32	10/0.6/39	13/0.8/48	1.17/1.21/1.10	0.94/0.91/0.92
	300	0.45	12/0.8/45	14/1.0/54	16/1.1/64	19/1.3/76	23/1.6/91	1.20/1.24/1.11	0.94/0.91/0.92
	350	0.53	18/1.4/71	21/1.6/85	25/1.9/100	29/2.2/117	34/2.6/137	1.23/1.28/1.12	0.94/0.90/0.92
	400	0.60	24/2.1/101	29/2.4/120	34/2.8/140	39/3.3/163	46/3.8/190	1.27/1.33/1.15	0.92/0.88/0.92
	450	0.68	33/3.0/139	38/3.6/163	45/4.1/190	52/4.8/220	60/5.5/253	1.34/1.41/1.20	0.89/0.84/0.90
	500	0.76	44/4.5/191	52/5.3/225	60/6.2/261	69/7.1/300	79/8.1/344	1.50/1.62/1.34	0.84/0.78/0.87
	550	0.83	67/7.9/301	78/9.2/351	90/10.6/405	104/12.1/464	118/13.8/529		0.77/0.71/0.80
	CMBT SPD KIAS/MACH		96/12.5/442	110/14.1/503	124/15.9/569	140/17.7/638	156/19.6/710	1.13/1.10/0.97	0.82/0.79/0.85
			566/0.86	566/0.86	566/0.85	565/0.85	564/0.85	0.93/0.93	1.01/1.01

Figure A8-5. (Sheet 2)

MIL Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−5°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/18	8/0.6/22	10/0.7/28	13/0.9/34	16/1.1/43	1.07/1.11/1.09	0.96/0.93/0.92
	300	0.54	13/1.0/36	16/1.3/45	20/1.6/55	24/1.9/67	29/2.3/81	1.08/1.12/1.09	0.96/0.93/0.92
	350	0.63	19/1.7/55	24/2.1/68	29/2.5/83	35/3.0/100	42/3.6/120	1.10/1.14/1.09	0.96/0.93/0.92
	400	0.72	26/2.4/76	31/3.0/93	38/3.6/112	45/4.3/134	54/5.1/159	1.12/1.16/1.10	0.96/0.92/0.92
	450	0.80	32/3.3/98	39/4.0/120	47/4.8/144	56/5.7/170	66/6.7/201	1.14/1.20/1.11	0.95/0.91/0.92
	500	0.89	39/4.3/123	47/5.2/150	56/6.2/179	67/7.3/211	78/8.6/248	1.19/1.26/1.13	0.94/0.90/0.91
	550	0.97	51/6.4/172	62/7.8/210	74/9.2/250	88/10.8/294	103/12.6/342		0.87/0.81/0.86
	CMBT SPD KIAS/MACH		68/9.4/241	81/11.1/285	95/12.8/331	109/14.5/378	124/16.3/428	1.12/1.15/1.01	1.13/1.16/1.27
			561/0.99	560/0.99	560/0.99	559/0.99	558/0.99	0.97/0.98	1.04/1.04

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/18	8/0.6/23	10/0.7/28	13/0.9/35	16/1.2/44	1.07/1.11/1.09	0.96/0.93/0.92
	300	0.54	13/1.1/37	17/1.3/46	20/1.6/56	25/2.0/69	30/2.4/84	1.08/1.12/1.09	0.96/0.93/0.92
	350	0.63	20/1.8/57	25/2.2/71	30/2.6/86	36/3.2/104	44/3.8/125	1.10/1.14/1.09	0.96/0.93/0.92
	400	0.72	27/2.6/79	33/3.2/98	40/3.8/118	48/4.5/140	57/5.4/167	1.12/1.17/1.10	0.96/0.92/0.92
	450	0.80	34/3.5/104	41/4.3/127	50/5.1/153	59/6.1/181	70/7.1/213	1.16/1.21/1.12	0.95/0.91/0.92
	500	0.89	42/4.7/133	51/5.7/162	61/6.8/194	72/8.0/229	84/9.3/268	1.22/1.30/1.16	0.93/0.89/0.91
	CMBT SPD KIAS/MACH		66/8.8/230	79/10.4/273	92/12.1/318	107/13.8/365	122/15.6/417	1.16/1.19/1.05	0.97/0.95/1.02
			542/0.96	542/0.96	541/0.96	541/0.96	540/0.96	0.97/0.98	1.02/1.02

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	8/0.6/21	10/0.7/26	12/0.9/32	15/1.1/40	19/1.4/51	1.08/1.12/1.09	0.96/0.92/0.92
	300	0.54	15/1.2/43	19/1.5/53	23/1.8/64	28/2.2/78	35/2.8/97	1.09/1.13/1.09	0.96/0.93/0.92
	350	0.63	23/2.0/66	28/2.5/81	34/3.0/98	41/3.6/118	50/4.3/143	1.10/1.15/1.10	0.96/0.93/0.92
	400	0.72	31/3.0/93	38/3.6/113	46/4.4/135	55/5.2/161	65/6.2/193	1.13/1.18/1.11	0.96/0.92/0.92
	450	0.80	40/4.2/123	48/5.0/149	58/6.0/177	68/7.1/210	81/8.3/248	1.17/1.24/1.13	0.94/0.90/0.91
	500	0.89	50/5.7/162	61/6.9/195	72/8.1/231	85/9.5/272	100/11.1/318	1.27/1.37/1.21	0.93/0.88/0.90
	CMBT SPD KIAS/MACH		72/9.4/249	86/11.0/293	100/12.6/339	115/14.4/389	132/16.3/443	1.18/1.22/1.07	0.97/0.95/1.00
			528/0.94	528/0.94	527/0.93	527/0.93	527/0.93	0.98/0.98	1.02/1.02

Figure A8-6. (Sheet 1)

MIL Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	9/0.6/24	11/0.8/30	14/1.0/37	17/1.2/47	22/1.6/61	1.08/1.12/1.09	0.96/0.92/0.92
	300	0.54	18/1.4/49	22/1.7/60	26/2.1/73	32/2.6/90	41/3.2/113	1.09/1.13/1.10	0.96/0.93/0.92
	350	0.63	27/2.4/77	32/2.9/93	39/3.4/112	47/4.1/136	58/5.0/166	1.11/1.16/1.10	0.96/0.93/0.92
	400	0.72	36/3.5/108	44/4.2/130	53/5.0/156	63/6.0/186	76/7.2/224	1.14/1.19/1.12	0.95/0.92/0.92
	450	0.80	47/5.0/146	57/5.9/175	67/7.0/208	80/8.3/246	95/9.8/292	1.20/1.27/1.16	0.94/0.90/0.91
	500	0.89	61/7.1/199	73/8.5/238	87/9.9/281	102/11.6/329	120/13.5/386	1.41/1.55/1.34	0.92/0.87/0.89
	CMBT SPD KIAS/MACH		81/10.2/274	95/11.9/322	110/13.7/371	127/15.6/426	147/17.8/489	1.27/1.33/1.17	0.95/0.92/0.96
			518/0.92	517/0.92	517/0.92	517/0.92	516/0.92	0.98/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	10/0.7/27	12/0.9/34	16/1.1/42	20/1.4/55	27/2.0/75	1.08/1.12/1.10	0.96/0.92/0.92
	300	0.54	20/1.6/56	25/2.0/68	30/2.4/84	37/3.0/104	48/3.8/134	1.09/1.14/1.10	0.96/0.93/0.92
	350	0.63	31/2.7/88	37/3.3/107	45/3.9/129	55/4.8/157	68/5.9/195	1.12/1.16/1.11	0.96/0.93/0.92
	400	0.72	42/4.1/126	51/4.9/151	61/5.8/181	73/7.0/217	90/8.4/264	1.15/1.21/1.13	0.95/0.91/0.91
	450	0.80	56/5.9/173	67/7.1/207	79/8.3/245	95/9.8/291	114/11.7/349	1.23/1.31/1.19	0.94/0.90/0.91
	500	0.89	77/9.2/254	92/10.8/301	108/12.7/353	127/14.8/414	151/17.3/489		0.89/0.84/0.87
	CMBT SPD KIAS/MACH		95/11.9/321	110/13.8/374	128/15.9/432	149/18.2/498	174/20.9/577	1.30/1.36/1.19	0.92/0.88/0.92
			509/0.90	509/0.90	509/0.90	509/0.90	509/0.90	0.97/0.97	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	10/0.7/28	13/0.9/35	16/1.2/44	21/1.5/57	29/2.0/78	1.08/1.12/1.10	0.96/0.92/0.92
	300	0.54	20/1.7/58	25/2.0/71	31/2.5/87	39/3.1/109	51/4.0/141	1.10/1.14/1.10	0.96/0.93/0.92
	350	0.63	32/2.8/92	39/3.4/112	47/4.1/135	58/5.0/165	72/6.2/206	1.12/1.17/1.12	0.96/0.93/0.92
	400	0.72	45/4.4/134	54/5.3/161	65/6.3/193	78/7.5/232	96/9.1/284	1.17/1.23/1.15	0.95/0.91/0.91
	450	0.80	61/6.6/191	73/7.8/228	87/9.3/270	104/11.0/321	126/13.1/387	1.29/1.39/1.25	0.93/0.89/0.90
	500	0.89	101/12.7/343	120/14.9/405					
	CMBT SPD KIAS/MACH		103/13.0/351	121/15.1/409	140/17.4/473	163/19.9/546	191/22.9/634	1.23/1.27/1.13	0.93/0.90/0.93
			500/0.89	500/0.89	500/0.89	500/0.89	499/0.89	0.95/0.95	1.01/1.01

Figure A8-6. (Sheet 2)

MIL Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−25°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.0/22	16/1.3/29	20/1.7/38	27/2.3/51	39/3.2/72	1.04/1.08/1.09	0.97/0.93/0.90
	300	0.65	23/2.2/45	30/2.7/58	38/3.5/73	48/4.4/94	65/5.9/127	1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	34/3.4/70	43/4.3/88	53/5.4/110	67/6.7/138	88/8.6/178	1.06/1.11/1.10	0.97/0.93/0.91
	400	0.85	44/4.8/96	55/6.0/120	68/7.4/148	85/9.1/183	108/11.4/231	1.08/1.13/1.10	0.97/0.93/0.91
	450	0.95	56/6.6/130	69/8.2/161	85/10.1/197	105/12.2/240	132/15.0/297	1.13/1.20/1.13	0.96/0.92/0.91
	CMBT SPD KIAS/MACH		107/15.4/285	125/17.7/327	142/19.7/367	161/21.6/406	179/23.0/438	0.93/0.92/0.87	1.01/0.98/0.99
			487/1.02	485/1.02	482/1.01	479/1.01	476/1.00	0.97/0.97	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.0/23	16/1.4/30	21/1.8/39	28/2.4/53	41/3.5/77	1.04/1.08/1.09	0.97/0.93/0.90
	300	0.65	24/2.3/47	31/2.9/61	40/3.7/77	51/4.7/100	70/6.3/135	1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	36/3.6/74	45/4.6/93	57/5.7/117	72/7.2/147	94/9.3/192	1.06/1.11/1.10	0.97/0.93/0.91
	400	0.85	47/5.2/103	59/6.5/129	73/8.0/160	91/9.9/198	117/12.4/251	1.08/1.14/1.11	0.97/0.93/0.91
	450	0.95	63/7.7/149	79/9.6/186	97/11.7/228	120/14.3/279	151/17.7/347	1.22/1.32/1.23	0.96/0.92/0.90
	CMBT SPD KIAS/MACH		84/11.2/211	102/13.4/253	121/15.7/298	145/18.4/351	175/21.6/417	1.08/1.12/1.05	0.97/0.93/0.93
			462/0.97	461/0.97	460/0.97	459/0.97	458/0.97	0.98/0.98	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DI = 100	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	15/1.2/28	19/1.6/36	26/2.1/48	36/3.0/67	58/4.8/108	1.04/1.08/1.09	0.97/0.93/0.90
	300	0.65	29/2.7/56	37/3.4/72	47/4.4/92	63/5.8/122	93/8.3/179	1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	43/4.3/88	54/5.4/111	68/6.8/140	88/8.7/179	122/11.9/247	1.07/1.11/1.11	0.97/0.93/0.91
	400	0.85	57/6.3/126	71/7.8/156	89/9.7/193	112/12.1/243	151/15.8/321	1.09/1.15/1.12	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		93/12.0/229	112/14.2/272	134/16.7/322	161/19.7/383	204/24.1/473	1.08/1.12/1.06	0.98/0.94/0.93
			449/0.95	448/0.95	447/0.95	446/0.94	445/0.94	0.98/0.98	1.00/1.00

Figure A8-7. (Sheet 1)

MIL Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 150	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	17/1.5/33	23/1.9/43	32/2.6/59	48/4.0/89	73/6.1/135	1.04/1.08/1.09	0.97/0.93/0.91
	300	0.65	34/3.2/67	44/4.1/86	58/5.3/112	80/7.3/156	115/10.4/223	1.05/1.10/1.10	0.97/0.93/0.91
	350	0.75	51/5.2/106	65/6.6/134	83/8.3/170	111/10.9/226	152/14.8/307	1.07/1.12/1.11	0.97/0.93/0.91
	400	0.85	69/7.7/154	87/9.6/191	109/11.9/239	142/15.2/307	189/19.9/404	1.10/1.16/1.13	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		104/13.0/250	125/15.5/299	151/18.4/357	188/22.3/437	239/27.5/545	1.10/1.14/1.08	0.97/0.93/0.92
			438/0.93	438/0.93	437/0.93	436/0.92	435/0.92	0.98/0.99	1.00/1.00

*BASED ON 206 KIAS/0.45 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 200	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	21/1.8/39	28/2.4/52	41/3.4/75	72/5.9/132	65/5.7/123	1.04/1.08/1.09	0.97/0.93/0.91
	300	0.65	41/3.8/80	53/4.9/104	72/6.6/140	112/10.1/216	120/11.3/237	1.05/1.10/1.10	0.97/0.93/0.91
	350	0.75	62/6.3/129	79/8.0/163	103/10.3/212	150/14.6/303	167/16.9/345	1.07/1.12/1.11	0.97/0.93/0.91
	400	0.85	86/9.6/191	108/12.0/238	138/15.1/303	192/20.3/412	218/23.9/476	1.13/1.19/1.15	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		120/14.8/287	145/17.7/345	180/21.5/421	238/27.4/543	270/31.7/623	1.17/1.23/1.16	0.97/0.93/0.92
			430/0.91	430/0.91	429/0.91	428/0.91	427/0.91	0.99/0.99	1.00/1.00

*BASED ON 219 KIAS/0.48 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	22/1.8/41	30/2.5/55	43/3.6/81	79/6.5/146	64/5.6/122	1.04/1.08/1.09	0.97/0.93/0.91
	300	0.65	43/4.1/85	57/5.3/111	78/7.1/152	124/11.1/238	127/12.0/250	1.06/1.10/1.10	0.97/0.93/0.91
	350	0.75	67/6.9/140	86/8.8/178	114/11.5/234	168/16.4/339	182/18.6/378	1.08/1.13/1.12	0.97/0.93/0.91
	400	0.85	97/11.0/218	122/13.8/273	158/17.6/350	222/23.9/482	250/28.0/555	1.16/1.23/1.19	0.97/0.93/0.92
	CMBT SPD KIAS/MACH		135/16.7/325	166/20.3/395	208/25.1/490	276/31.9/632	306/36.3/712	1.12/1.16/1.10	0.97/0.93/0.91
			424/0.90	424/0.90	424/0.90	422/0.90	419/0.89	0.98/0.98	1.00/1.00

*BASED ON 201 KIAS/0.44 MACH.
**BASED ON 222 KIAS/0.49 MACH.

Figure A8-7. (Sheet 2)

MIL Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 0	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	23/2.3/30	32/3.2/42	47/4.6/62	82/8.0/107	87/8.9/116	1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	43/4.7/60	58/6.3/81	81/8.6/112	127/13.3/173	149/16.2/208	1.06/1.11/1.11	0.97/0.93/0.90
	350	0.91	63/7.4/93	83/9.7/122	112/12.9/163	165/18.6/237	197/22.9/288	1.07/1.12/1.11	0.97/0.92/0.90
	CMBT SPD KIAS/MACH		137/19.5/239	158/21.8/268	176/23.2/287	234/29.5/367	269/34.1/422	1.00/1.02/1.01	0.93/0.89/0.87
			400/1.02	395/1.01	389/1.00	386/0.99	382/0.98	0.99/0.99	1.00/1.00

***BASED ON 217 KIAS/0.59 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 50	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	25/2.4/32	34/3.4/45	51/5.0/67	95/9.2/123	85/8.7/113	1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	47/5.1/65	63/6.8/88	89/9.5/123	146/15.2/198	157/17.2/220	1.06/1.11/1.11	0.97/0.93/0.90
	350	0.91	70/8.3/104	92/10.9/137	126/14.6/185	192/21.7/276	216/25.6/320	1.07/1.12/1.11	0.97/0.92/0.90
	CMBT SPD KIAS/MACH		110/14.6/179	137/17.9/221	175/22.2/275	243/29.6/371	271/33.8/419	1.06/1.10/1.09	0.96/0.91/0.89
			378/0.97	376/0.97	374/0.96	371/0.96	368/0.95	1.00/1.00	1.00/1.00

***BASED ON 221 KIAS/0.60 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 100	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	31/3.1/41	45/4.4/59	75/7.3/98	98/9.8/129	50/5.4/69	1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	59/6.4/83	82/8.8/114	124/13.2/171	168/18.1/233	163/18.7/236	1.07/1.12/1.11	0.97/0.93/0.90
	350	0.91	90/10.8/135	122/14.5/182	176/20.4/258	236/27.7/347	259/32.1/397	1.08/1.13/1.12	0.97/0.93/0.90
	CMBT SPD KIAS/MACH		125/16.0/197	158/19.9/246	212/25.8/322	269/32.6/406	284/35.9/441	1.06/1.10/1.09	0.96/0.91/0.89
			366/0.95	364/0.94	362/0.94	359/0.93	355/0.92	1.00/1.00	1.00/1.00

***BASED ON 213 KIAS/0.58 MACH.**
****BASED ON 239 KIAS/0.64 MACH.**

Figure A8-8. (Sheet 1)

MIL Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DI = 150	200	0.54	0/0/0	0/0/0	0/0/0*	0/0/0**	0/0/0***	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	40/4.0/53	63/6.2/82	110/10.8/143	71/7.5/97		1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	77/8.3/107	112/12.0/155	178/19.0/246	180/20.4/258	156/18.9/235	1.07/1.12/1.12	0.97/0.93/0.90
	350	0.91	123/14.8/185	173/20.7/259	263/30.8/387			1.09/1.14/1.13	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		145/18.1/224	193/23.5/293	275/32.7/410	303/37.7/465	320/41.6/508	1.07/1.12/1.11	0.96/0.92/0.90
			356/0.92	354/0.92	352/0.91	349/0.91	344/0.89	1.00/1.00	1.00/1.00

* **BASED ON 205 KIAS/0.55 MACH.**
** **BASED ON 232 KIAS/0.62 MACH.**
*** **BASED ON 261 KIAS/0.70 MACH.**

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB		+20°C	−20°C
DI = 200	200	0.54	0/0/0	0/0/0	0/0/0*	0/0/0**		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	55/5.4/71	100/9.7/130	91/9.4/123			1.04/1.08/1.10	0.98/0.94/0.91
	300	0.79	104/11.2/145	169/18.0/233	199/22.2/282	188/22.5/281		1.08/1.13/1.13	0.98/0.94/0.91
	CMBT SPD KIAS/MACH		185/22.8/283	273/32.6/408	328/40.3/499	322/40.8/503		1.09/1.14/1.13	0.97/0.92/0.90
			349/0.91	347/0.90	343/0.89	332/0.87		1.00/1.00	1.00/1.00

* **BASED ON 224 KIAS/0.60 MACH.**
** **BASED ON 255 KIAS/0.68 MACH.**

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB			+20°C	−20°C
DI = 250	200	0.54	0/0/0	0/0/0	0/0/0*			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	61/6.0/80	120/11.7/156	79/8.3/108			1.03/1.08/1.10	0.98/0.94/0.91
	300	0.79	120/13.0/168	206/21.9/284	226/25.8/326			1.09/1.14/1.14	0.98/0.94/0.91
	CMBT SPD KIAS/MACH		214/26.2/326	314/36.9/465	336/40.7/508			1.10/1.15/1.14	0.95/0.90/0.89
			341/0.89	336/0.88	327/0.86			1.00/1.00	1.00/1.00

* **BASED ON 231 KIAS/0.62 MACH.**

Figure A8-8. (Sheet 2)

MAX AB Accelerations — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/35	3/0.2/42	3/0.2/50	4/0.2/59	4/0.3/68	1.13/1.17/1.08	0.92/0.88/0.94
	300	0.45	4/0.3/69	5/0.4/84	6/0.4/99	7/0.5/116	8/0.6/133	1.13/1.17/1.07	0.92/0.89/0.94
	350	0.53	6/0.5/104	8/0.6/126	9/0.7/149	10/0.8/173	12/0.9/198	1.13/1.17/1.08	0.92/0.89/0.94
	400	0.60	8/0.7/139	10/0.8/168	12/1.0/199	14/1.1/230	16/1.3/263	1.14/1.19/1.08	0.92/0.89/0.94
	450	0.68	10/0.9/175	12/1.1/212	15/1.3/249	17/1.5/288	19/1.7/329	1.16/1.20/1.09	0.92/0.88/0.94
	500	0.76	12/1.2/212	15/1.4/256	17/1.7/301	20/1.9/348	23/2.2/396	1.17/1.22/1.10	0.91/0.88/0.94
	550	0.83	14/1.4/251	17/1.7/303	20/2.0/356	23/2.4/411	26/2.7/467	1.18/1.23/1.11	0.92/0.88/0.94
	600	0.91	16/1.8/294	19/2.1/354	23/2.5/416	26/2.9/479	30/3.3/544	1.19/1.25/1.12	0.92/0.89/0.94
	650	0.98	19/2.2/349	22/2.6/421	26/3.1/494	30/3.6/568	34/4.0/645	1.20/1.26/1.13	0.92/0.89/0.94
	700	1.06	22/2.9/439	27/3.5/529	31/4.1/620	36/4.7/713	41/5.3/809	1.24/1.32/1.18	0.92/0.88/0.93
	750	1.13	28/4.0/573	33/4.8/690	39/5.6/808	45/6.4/929	51/7.3/1052	1.33/1.44/1.28	0.91/0.87/0.91
	LIMIT SPD KIAS/MACH		37/5.9/809	44/7.1/973	51/8.3/1138	59/9.5/1307	67/10.8/1480	1.75/2.00/1.76	0.89/0.84/0.88
			800/1.21	800/1.21	800/1.21	800/1.21	800/1.21	1.00/1.00	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/35	3/0.2/43	3/0.2/51	4/0.2/59	4/0.3/69	1.13/1.17/1.08	0.92/0.88/0.94
	300	0.45	4/0.3/70	5/0.4/85	6/0.4/100	7/0.5/117	8/0.6/135	1.13/1.17/1.08	0.92/0.89/0.94
	350	0.53	6/0.5/105	8/0.6/128	9/0.7/151	11/0.8/175	12/0.9/201	1.13/1.17/1.08	0.92/0.89/0.94
	400	0.60	8/0.7/141	10/0.8/171	12/1.0/202	14/1.2/234	16/1.3/267	1.15/1.19/1.08	0.92/0.89/0.94
	450	0.68	10/0.9/178	13/1.1/216	15/1.3/254	17/1.5/294	20/1.7/335	1.16/1.21/1.09	0.92/0.88/0.94
	500	0.76	12/1.2/217	15/1.4/262	18/1.7/308	20/2.0/356	23/2.2/406	1.17/1.22/1.10	0.91/0.88/0.94
	550	0.83	14/1.5/258	17/1.8/312	20/2.1/366	24/2.4/422	27/2.8/480	1.19/1.24/1.12	0.92/0.88/0.94
	600	0.91	17/1.8/305	20/2.2/367	24/2.6/431	27/3.0/497	31/3.4/564	1.20/1.26/1.13	0.92/0.88/0.94
	650	0.98	20/2.4/374	24/2.9/450	28/3.3/528	32/3.8/607	36/4.4/688	1.23/1.30/1.16	0.92/0.88/0.93
	700	1.06	27/3.7/550	33/4.5/663	38/5.3/777	44/6.1/894	50/6.9/1013	1.77/2.06/1.78	0.90/0.86/0.90
	750	1.13	51/8.5/1148	60/10.1/1366	70/11.8/1587	80/13.4/1814	91/15.3/2062		0.78/0.72/0.76
	CMBT SPD KIAS/MACH		67/12.1/1583	79/14.0/1848	90/16.0/2111	102/18.0/2371	113/20.0/2640	1.07/1.04/0.98	0.93/0.90/0.93
			755/1.14	756/1.14	756/1.14	756/1.14	755/1.14	0.94/0.94	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.2/39	3/0.2/47	3/0.2/55	4/0.3/64	5/0.3/75	1.13/1.17/1.08	0.92/0.88/0.94
	300	0.45	5/0.3/78	6/0.4/93	7/0.5/110	8/0.5/127	9/0.6/146	1.13/1.17/1.08	0.92/0.88/0.94
	350	0.53	7/0.5/118	9/0.7/141	10/0.8/165	12/0.9/190	13/1.0/217	1.14/1.18/1.08	0.92/0.89/0.94
	400	0.60	9/0.8/159	11/0.9/189	13/1.1/221	15/1.3/254	17/1.4/289	1.15/1.19/1.09	0.92/0.88/0.94
	450	0.68	12/1.1/201	14/1.3/239	16/1.5/279	19/1.7/320	21/1.9/363	1.16/1.21/1.10	0.91/0.88/0.94
	500	0.76	14/1.4/245	17/1.6/292	19/1.9/340	22/2.1/390	25/2.4/441	1.18/1.23/1.11	0.91/0.88/0.94
	550	0.83	16/1.7/293	19/2.0/349	23/2.3/405	26/2.7/464	29/3.0/525	1.19/1.25/1.12	0.91/0.88/0.94
	600	0.91	19/2.1/349	23/2.5/415	26/2.9/482	30/3.3/551	34/3.8/621	1.21/1.27/1.14	0.91/0.88/0.94
	650	0.98	24/2.9/451	28/3.5/536	32/4.0/621	37/4.6/709	42/5.1/798	1.29/1.39/1.23	0.91/0.87/0.92
	CMBT SPD KIAS/MACH		46/7.1/992	53/8.2/1141	60/9.2/1288	67/10.2/1430	74/11.1/1570	0.93/0.89/0.83	0.97/0.95/0.98
			680/1.03	680/1.03	679/1.03	679/1.03	679/1.03	0.97/0.97	1.01/1.01

Figure A8-9. (Sheet 1)

MAX AB Accelerations — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/43	3/0.2/51	4/0.2/60	4/0.3/70	5/0.3/81	1.13/1.17/1.08	0.91/0.88/0.94
	300	0.45	5/0.4/87	6/0.4/102	7/0.5/119	8/0.6/138	10/0.7/157	1.13/1.17/1.08	0.92/0.88/0.94
	350	0.53	8/0.6/131	9/0.7/155	11/0.8/179	13/0.9/206	14/1.1/234	1.14/1.18/1.08	0.92/0.88/0.94
	400	0.60	11/0.9/177	12/1.0/208	14/1.2/241	16/1.4/276	19/1.5/313	1.15/1.20/1.09	0.92/0.88/0.94
	450	0.68	13/1.2/224	15/1.4/264	18/1.6/305	20/1.8/348	23/2.1/394	1.17/1.22/1.10	0.91/0.88/0.94
	500	0.76	16/1.5/275	18/1.8/323	21/2.1/373	24/2.3/425	27/2.6/480	1.18/1.24/1.12	0.91/0.88/0.94
	550	0.83	18/1.9/331	22/2.3/388	25/2.6/448	28/2.9/509	32/3.3/573	1.20/1.26/1.13	0.91/0.88/0.94
	600	0.91	22/2.4/398	25/2.8/467	29/3.3/538	33/3.7/610	37/4.2/685	1.22/1.29/1.15	0.91/0.88/0.93
	650	0.98	30/3.9/593	35/4.6/694	41/5.3/797	46/6.0/902	52/6.7/1011		0.88/0.84/0.89
	CMBT SPD KIAS/MACH		38/5.4/784	44/6.2/902	50/7.0/1018	56/7.8/1135	62/8.6/1253	1.15/1.17/1.06	0.93/0.90/0.94
			655/0.99	655/0.99	655/0.99	654/0.99	654/0.99	0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/48	4/0.2/56	4/0.3/66	5/0.3/76	5/0.3/88	1.14/1.18/1.08	0.91/0.88/0.93
	300	0.45	6/0.4/95	7/0.5/112	8/0.6/130	9/0.6/149	10/0.7/170	1.14/1.18/1.08	0.91/0.88/0.94
	350	0.53	9/0.7/144	10/0.8/169	12/0.9/195	14/1.0/223	15/1.2/253	1.14/1.18/1.08	0.92/0.88/0.94
	400	0.60	12/1.0/195	14/1.1/228	16/1.3/262	18/1.5/299	20/1.7/337	1.16/1.20/1.09	0.91/0.88/0.94
	450	0.68	15/1.3/249	17/1.5/290	19/1.7/333	22/2.0/378	25/2.2/426	1.17/1.22/1.10	0.91/0.88/0.94
	500	0.76	18/1.7/307	20/2.0/357	23/2.3/409	27/2.6/464	30/2.9/521	1.19/1.25/1.12	0.91/0.87/0.94
	550	0.83	21/2.2/371	24/2.5/431	28/2.9/494	31/3.2/558	35/3.6/625	1.21/1.27/1.14	0.91/0.88/0.94
	600	0.91	25/2.8/453	28/3.2/526	33/3.7/600	37/4.1/677	41/4.6/757	1.24/1.31/1.17	0.91/0.88/0.93
	CMBT SPD KIAS/MACH		40/5.5/807	46/6.3/920	52/7.0/1034	58/7.8/1147	63/8.5/1263	1.18/1.20/1.09	0.93/0.90/0.94
			641/0.97	641/0.97	641/0.97	641/0.97	641/0.97	0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/48	4/0.2/57	4/0.3/66	5/0.3/77	6/0.3/88	1.14/1.18/1.08	0.91/0.88/0.93
	300	0.45	6/0.4/96	7/0.5/113	8/0.6/131	9/0.6/150	11/0.7/172	1.14/1.18/1.08	0.91/0.88/0.94
	350	0.53	9/0.7/146	10/0.8/171	12/0.9/198	14/1.0/226	16/1.2/256	1.14/1.18/1.09	0.91/0.88/0.94
	400	0.60	12/1.0/199	14/1.1/232	16/1.3/267	18/1.5/304	20/1.7/343	1.16/1.20/1.09	0.91/0.88/0.94
	450	0.68	15/1.3/254	17/1.6/297	20/1.8/340	23/2.0/386	25/2.3/435	1.18/1.23/1.11	0.91/0.88/0.94
	500	0.76	18/1.8/315	21/2.0/367	24/2.3/420	27/2.6/476	31/3.0/535	1.20/1.25/1.13	0.91/0.87/0.94
	550	0.83	21/2.2/384	25/2.6/446	28/3.0/511	32/3.4/577	36/3.8/647	1.22/1.29/1.15	0.91/0.87/0.93
	600	0.91	26/2.9/477	30/3.4/553	34/3.9/632	39/4.4/713	43/4.9/797	1.27/1.35/1.20	0.91/0.87/0.93
	CMBT SPD KIAS/MACH		40/5.4/793	46/6.1/904	51/6.9/1016	57/7.6/1129	63/8.3/1245	1.18/1.21/1.09	0.92/0.89/0.93
			631/0.95	631/0.95	631/0.95	631/0.95	631/0.95	0.98/0.98	1.00/1.00

Figure A8-9. (Sheet 2)

MAX AB Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−5°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	3/0.2/38	4/0.3/46	5/0.3/55	6/0.4/65	7/0.5/77	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	6/0.5/76	8/0.6/92	9/0.7/110	11/0.9/129	13/1.0/150	1.11/1.15/1.09	0.93/0.90/0.92
	350	0.63	9/0.8/114	11/1.0/139	13/1.2/165	16/1.4/193	18/1.6/223	1.12/1.16/1.09	0.93/0.89/0.93
	400	0.72	12/1.1/154	15/1.4/187	17/1.6/221	20/1.9/258	23/2.2/297	1.13/1.17/1.09	0.92/0.89/0.93
	450	0.80	15/1.5/195	18/1.8/237	21/2.2/280	25/2.5/325	28/2.9/373	1.14/1.18/1.09	0.92/0.88/0.93
	500	0.89	18/1.9/238	21/2.3/288	25/2.7/340	29/3.2/394	33/3.6/451	1.15/1.20/1.10	0.91/0.87/0.93
	550	0.97	20/2.4/286	25/2.9/346	29/3.4/407	34/3.9/471	38/4.4/537	1.17/1.23/1.12	0.91/0.86/0.92
	600	1.06	24/3.0/350	29/3.6/423	34/4.3/498	39/4.9/575	45/5.6/655	1.22/1.30/1.17	0.89/0.84/0.91
	650	1.14	28/3.8/429	34/4.6/518	40/5.4/609	46/6.2/703	52/7.1/801	1.28/1.39/1.24	0.87/0.82/0.90
	700	1.23	33/4.8/527	39/5.8/636	46/6.8/748	54/7.8/863	61/8.9/982	1.38/1.51/1.33	0.86/0.80/0.88
	750	1.32	38/6.1/653	46/7.3/787	54/8.6/924	63/9.9/1065	71/11.2/1211	1.60/1.83/1.58	0.84/0.79/0.86
	LIMIT SPD KIAS/MACH		46/7.9/832	55/9.5/1001	65/11.1/1174	75/12.8/1352	85/14.5/1536	2.68/3.39/2.84	0.83/0.77/0.84
			800/1.41	800/1.41	800/1.41	800/1.41	800/1.41	0.99/0.99	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	3/0.2/38	4/0.3/47	5/0.4/56	6/0.4/66	7/0.5/78	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	6/0.5/77	8/0.6/94	9/0.7/112	11/0.9/131	13/1.0/152	1.11/1.15/1.09	0.93/0.90/0.92
	350	0.63	9/0.8/116	11/1.0/141	14/1.2/168	16/1.4/196	18/1.6/227	1.12/1.16/1.09	0.93/0.89/0.93
	400	0.72	12/1.2/157	15/1.4/191	18/1.7/226	21/2.0/263	24/2.3/303	1.13/1.18/1.09	0.92/0.89/0.93
	450	0.80	15/1.6/200	18/1.9/243	22/2.2/287	25/2.6/333	29/3.0/382	1.14/1.19/1.10	0.92/0.88/0.93
	500	0.89	18/2.0/246	22/2.4/297	26/2.8/351	30/3.3/406	34/3.7/465	1.15/1.21/1.11	0.91/0.87/0.92
	550	0.97	21/2.5/300	26/3.0/362	30/3.6/427	35/4.1/493	40/4.7/563	1.19/1.25/1.14	0.90/0.86/0.92
	600	1.06	26/3.4/388	31/4.1/469	37/4.8/552	43/5.5/637	49/6.3/726	1.31/1.43/1.28	0.87/0.82/0.90
	650	1.14	32/4.6/509	39/5.5/615	46/6.5/723	53/7.5/834	60/8.5/950	1.53/1.72/1.51	0.84/0.78/0.86
	700	1.23	41/6.4/693	49/7.8/834	58/9.1/979	67/10.5/1129	77/11.9/1286		0.80/0.74/0.81
	750	1.32	58/10.2/1066	69/12.3/1279	81/14.3/1495	94/16.5/1720	107/18.7/1957		0.73/0.66/0.73
	CMBT SPD KIAS/MACH		101/20.6/2088	119/24.1/2439	136/27.4/2781	153/30.8/3125	171/34.1/3466	0.98/0.91/0.82	0.78/0.74/0.80
			775/1.37	775/1.37	775/1.37	775/1.37	775/1.36	0.89/0.88	1.03/1.03

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/43	4/0.3/52	5/0.4/62	6/0.5/73	7/0.5/85	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	7/0.6/86	9/0.7/104	10/0.8/123	12/1.0/143	14/1.1/167	1.11/1.15/1.09	0.93/0.89/0.92
	350	0.63	11/0.9/131	13/1.1/157	15/1.3/185	17/1.5/215	20/1.7/247	1.12/1.17/1.09	0.93/0.89/0.93
	400	0.72	14/1.3/177	17/1.6/213	20/1.9/249	23/2.2/289	26/2.5/331	1.13/1.18/1.10	0.92/0.88/0.93
	450	0.80	17/1.8/227	21/2.1/272	24/2.5/318	28/2.9/367	32/3.3/419	1.14/1.19/1.10	0.91/0.88/0.93
	500	0.89	21/2.3/280	25/2.7/335	29/3.2/391	33/3.6/449	38/4.1/512	1.16/1.22/1.11	0.91/0.87/0.92
	550	0.97	25/2.9/349	29/3.5/416	34/4.1/485	39/4.7/557	45/5.3/632	1.21/1.28/1.16	0.90/0.85/0.91
	600	1.06	33/4.5/511	40/5.4/608	46/6.3/709	53/7.2/813	61/8.1/922		0.83/0.77/0.85
	650	1.14	48/7.4/799	57/8.8/950	67/10.2/1107	77/11.7/1270	87/13.3/1443		0.74/0.67/0.74
	CMBT SPD KIAS/MACH		93/16.9/1731	109/19.6/2014	124/22.2/2285	139/24.8/2555	154/27.3/2818	0.73/0.65/0.61	0.91/0.91/0.99
			686/1.20	686/1.21	686/1.21	686/1.20	685/1.20	0.86/0.86	1.05/1.05

Figure A8-10. (Sheet 1)

MAX AB Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−5°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
			GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/48	5/0.4/57	6/0.4/68	7/0.5/80	8/0.6/94	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	8/0.6/96	10/0.8/115	11/0.9/135	13/1.0/157	15/1.2/182	1.11/1.16/1.09	0.93/0.89/0.92
	350	0.63	12/1.0/146	14/1.2/174	16/1.4/203	19/1.7/235	22/1.9/270	1.13/1.17/1.09	0.93/0.89/0.93
	400	0.72	16/1.5/199	19/1.8/236	22/2.0/274	25/2.4/316	29/2.7/361	1.14/1.18/1.10	0.92/0.88/0.93
	450	0.80	19/2.0/256	23/2.4/303	27/2.7/351	31/3.1/403	35/3.6/459	1.15/1.20/1.11	0.91/0.87/0.92
	500	0.89	23/2.6/318	28/3.0/375	32/3.5/434	37/4.0/497	42/4.5/564	1.17/1.23/1.12	0.90/0.86/0.92
	550	0.97	29/3.4/409	34/4.1/480	39/4.7/555	44/5.3/633	50/6.0/716	1.25/1.35/1.21	0.89/0.84/0.91
	CMBT SPD KIAS/MACH		66/10.3/1107	76/11.7/1257	85/13.0/1402	94/14.3/1546	102/15.4/1673	0.79/0.73/0.69	1.38/1.51/1.59
			595/1.05	595/1.05	594/1.05	593/1.05	592/1.04	0.95/0.95	1.12/1.12

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
			GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	5/0.3/53	5/0.4/63	6/0.5/74	8/0.5/87	9/0.6/103	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	9/0.7/107	11/0.8/126	12/1.0/148	14/1.1/172	17/1.3/199	1.12/1.16/1.09	0.93/0.89/0.92
	350	0.63	13/1.2/163	16/1.4/191	18/1.6/222	21/1.8/256	24/2.1/295	1.13/1.17/1.10	0.93/0.89/0.93
	400	0.72	17/1.7/222	20/1.9/261	24/2.3/302	27/2.6/346	31/2.9/395	1.14/1.19/1.10	0.92/0.88/0.93
	450	0.80	22/2.2/287	26/2.6/336	29/3.0/388	34/3.5/443	38/3.9/503	1.15/1.21/1.11	0.91/0.87/0.92
	500	0.89	26/2.9/359	31/3.4/419	35/3.9/482	40/4.4/549	46/5.0/621	1.18/1.24/1.13	0.90/0.86/0.92
	550	0.97	34/4.1/484	39/4.8/564	45/5.5/647	51/6.2/734	58/7.0/827	1.53/1.73/1.52	0.87/0.82/0.89
	CMBT SPD KIAS/MACH		48/6.8/754	55/7.7/859	63/8.6/967	70/9.6/1077	78/10.5/1190	1.10/1.12/1.02	1.22/1.27/1.36
			566/1.00	566/1.00	565/1.00	565/1.00	565/1.00	0.97/0.97	1.03/1.03

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
			GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	5/0.3/53	6/0.4/64	7/0.5/75	8/0.6/89	9/0.7/105	1.10/1.15/1.10	0.93/0.90/0.92
	300	0.54	9/0.7/108	11/0.9/128	13/1.0/150	15/1.2/174	17/1.4/202	1.12/1.16/1.09	0.93/0.89/0.92
	350	0.63	13/1.2/165	16/1.4/195	18/1.6/226	21/1.9/261	24/2.1/300	1.13/1.18/1.10	0.92/0.89/0.93
	400	0.72	18/1.7/227	21/2.0/267	24/2.3/309	28/2.6/354	32/3.0/404	1.14/1.19/1.11	0.92/0.88/0.92
	450	0.80	22/2.3/296	26/2.7/346	30/3.1/399	35/3.6/456	40/4.0/519	1.16/1.21/1.12	0.91/0.87/0.92
	500	0.89	27/3.0/374	32/3.5/436	37/4.1/501	42/4.6/571	47/5.2/646	1.19/1.25/1.14	0.90/0.86/0.91
	550	0.97	38/4.9/564	44/5.7/655	51/6.5/752	58/7.4/854	66/8.3/964		0.83/0.77/0.84
	CMBT SPD KIAS/MACH		47/6.5/726	54/7.3/829	61/8.3/934	69/9.2/1041	76/10.1/1152	1.12/1.14/1.04	0.93/0.91/0.98
			554/0.98	554/0.98	554/0.98	554/0.98	554/0.98	0.98/0.98	1.01/1.01

Figure A8-10. (Sheet 2)

MAX AB Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	6/0.5/44	7/0.6/54	8/0.7/66	10/0.9/80	12/1.0/97	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	11/1.0/86	13/1.2/106	16/1.5/128	19/1.7/153	22/2.1/182	1.08/1.12/1.10	0.92/0.88/0.93
	350	0.75	15/1.5/129	19/1.9/158	23/2.3/189	27/2.7/224	31/3.1/264	1.08/1.13/1.11	0.92/0.88/0.93
	400	0.85	20/2.1/172	24/2.6/211	29/3.1/252	34/3.6/296	40/4.3/346	1.09/1.14/1.11	0.92/0.88/0.93
	450	0.95	24/2.7/220	29/3.3/268	34/4.0/319	40/4.7/373	47/5.4/434	1.11/1.16/1.11	0.92/0.88/0.92
	500	1.05	28/3.5/280	34/4.3/341	41/5.1/405	48/6.0/473	56/6.9/547	1.14/1.20/1.13	0.91/0.87/0.92
	550	1.14	33/4.5/352	41/5.5/427	48/6.5/506	56/7.5/590	65/8.7/681	1.18/1.25/1.17	0.90/0.85/0.91
	600	1.24	38/5.5/431	47/6.7/524	56/8.0/620	65/9.3/722	75/10.6/831	1.23/1.32/1.22	0.88/0.83/0.89
	650	1.34	44/6.8/526	54/8.2/637	63/9.7/754	74/11.3/876	85/13.0/1007	1.30/1.43/1.30	0.86/0.80/0.87
	700	1.45	51/8.4/649	62/10.2/786	73/12.0/929	85/13.9/1078	98/15.9/1236	1.44/1.63/1.45	0.83/0.77/0.84
	750	1.56	59/10.5/813	72/12.7/983	85/15.0/1159	98/17.4/1344	113/19.9/1539		0.79/0.72/0.80
	LIMIT SPD KIAS/MACH		72/14.2/1091	88/17.2/1316	103/20.2/1547	120/23.3/1791	138/26.7/2049	1.92/2.22/1.93	0.72/0.63/0.71
			800/1.68	800/1.68	800/1.68	800/1.68	800/1.68	0.93/0.93	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	6/0.5/44	7/0.6/55	9/0.7/67	10/0.9/81	13/1.1/99	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	11/1.0/88	13/1.2/108	16/1.5/131	19/1.8/156	23/2.1/186	1.08/1.12/1.10	0.92/0.88/0.93
	350	0.75	16/1.6/132	19/1.9/162	23/2.3/194	27/2.8/230	32/3.2/271	1.08/1.13/1.11	0.92/0.88/0.93
	400	0.85	20/2.2/178	25/2.7/217	29/3.2/259	35/3.8/305	41/4.4/357	1.10/1.14/1.11	0.92/0.88/0.93
	450	0.95	24/2.9/229	30/3.5/279	36/4.1/332	42/4.9/389	49/5.6/452	1.11/1.17/1.12	0.92/0.88/0.92
	500	1.05	30/3.9/305	37/4.7/371	44/5.6/441	52/6.5/515	60/7.5/596	1.16/1.23/1.16	0.90/0.86/0.91
	550	1.14	37/5.2/402	45/6.3/489	54/7.4/579	63/8.6/675	73/10.0/779	1.25/1.34/1.24	0.88/0.83/0.89
	600	1.24	45/6.7/517	54/8.1/628	64/9.6/743	75/11.2/865	87/12.8/996	1.38/1.52/1.38	0.85/0.80/0.86
	650	1.34	54/8.7/674	66/10.6/816	78/12.5/964	90/14.5/1121	104/16.7/1288	1.87/2.21/1.96	0.81/0.75/0.82
	700	1.45	69/12.2/945	83/14.8/1141	98/17.4/1346	114/20.2/1563	132/23.2/1794		0.74/0.66/0.73
	750	1.56	108/22.6/1734	129/26.7/2053	151/31.1/2388	175/36.1/2775	203/41.7/3209		0.56/0.46/0.51
	CMBT SPD KIAS/MACH		142/31.7/2426	168/37.2/2845	195/42.9/3282	224/49.0/3757	251/54.7/4196	0.99/0.91/0.81	0.51/0.43/0.49
			757/1.58	757/1.58	758/1.58	758/1.58	757/1.58	0.87/0.86	1.06/1.06

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	6/0.5/50	8/0.7/62	10/0.8/75	12/1.0/91	14/1.2/111	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	12/1.1/100	15/1.4/122	18/1.7/146	22/2.0/175	26/2.4/209	1.08/1.12/1.10	0.92/0.88/0.93
	350	0.75	18/1.8/150	22/2.2/182	26/2.6/217	31/3.1/257	36/3.6/303	1.09/1.13/1.11	0.92/0.88/0.93
	400	0.85	23/2.5/203	28/3.0/245	33/3.6/291	39/4.2/341	46/4.9/399	1.10/1.15/1.12	0.92/0.88/0.93
	450	0.95	28/3.3/265	34/4.0/319	40/4.7/376	47/5.5/439	55/6.3/510	1.12/1.18/1.13	0.92/0.88/0.92
	500	1.05	37/4.8/381	45/5.8/457	53/6.8/538	61/7.9/626	71/9.2/724	1.24/1.34/1.25	0.89/0.84/0.89
	550	1.14	49/7.1/547	59/8.5/656	69/9.9/772	81/11.5/895	93/13.2/1031	1.51/1.70/1.54	0.84/0.79/0.84
	600	1.24	64/10.1/778	77/12.1/931	90/14.2/1093	105/16.4/1266	121/18.8/1454		0.78/0.72/0.78
	650	1.34	97/17.5/1344	116/20.8/1597	136/24.4/1870	158/28.3/2171	183/32.7/2508		0.63/0.55/0.60
	CMBT SPD KIAS/MACH		139/27.2/2089	162/31.5/2421	185/35.9/2753	209/40.2/3089	234/44.6/3428	1.00/0.94/0.84	1.18/1.29/1.48
			662/1.37	662/1.37	661/1.37	661/1.37	660/1.37	0.88/0.88	1.15/1.16

Figure A8-11. (Sheet 1)

MAX AB Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−25°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	7/0.6/57	9/0.7/69	11/0.9/84	13/1.1/103	16/1.4/127	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	14/1.3/113	17/1.6/137	20/1.9/163	24/2.2/195	29/2.7/235	1.08/1.13/1.10	0.92/0.88/0.93
	350	0.75	20/2.0/170	24/2.5/205	29/2.9/243	34/3.4/287	40/4.0/339	1.09/1.13/1.11	0.92/0.88/0.93
	400	0.85	26/2.9/231	31/3.4/277	37/4.0/326	43/4.7/382	51/5.5/447	1.10/1.15/1.12	0.92/0.88/0.92
	450	0.95	33/3.8/306	39/4.6/364	46/5.4/427	53/6.2/497	62/7.2/577	1.13/1.19/1.14	0.91/0.87/0.92
	500	1.05	49/6.6/519	58/7.9/619	69/9.3/728	80/10.8/849	93/12.6/989		0.84/0.78/0.83
	550	1.14	78/12.2/935	93/14.5/1116	110/17.0/1311	128/19.9/1530	150/23.1/1783		0.71/0.65/0.70
	CMBT SPD KIAS/MACH		145/25.7/1957	168/29.7/2265	192/33.8/2571	216/37.7/2874	243/42.1/3212	0.56/0.48/0.45	1.03/1.07/1.20
			589/1.22	588/1.22	587/1.22	586/1.21	585/1.21	0.84/0.85	1.11/1.11

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DI = 200	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	8/0.7/64	10/0.8/78	12/1.0/95	15/1.2/116	19/1.6/146	1.08/1.13/1.10	0.92/0.88/0.92
	300	0.65	16/1.5/127	19/1.7/153	23/2.1/183	27/2.5/219	33/3.0/266	1.08/1.13/1.10	0.92/0.88/0.93
	350	0.75	23/2.3/192	27/2.8/230	32/3.2/272	38/3.8/321	46/4.5/383	1.09/1.14/1.12	0.92/0.88/0.93
	400	0.85	30/3.3/262	35/3.9/311	42/4.5/366	49/5.3/428	58/6.2/503	1.11/1.16/1.13	0.91/0.88/0.92
	450	0.95	37/4.4/354	44/5.2/417	52/6.1/487	60/7.1/566	71/8.2/658	1.14/1.20/1.15	0.91/0.87/0.91
	CMBT SPD KIAS/MACH		79/11.6/898	88/12.7/985	95/13.6/1057	105/14.7/1149	117/16.1/1259	0.90/0.89/0.83	2.49/2.94/3.15
			489/1.03	488/1.02	486/1.02	485/1.02	483/1.01	0.97/0.97	1.19/1.17

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DI = 250	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	8/0.7/65	10/0.8/79	12/1.0/97	15/1.3/119	19/1.6/150	1.09/1.13/1.10	0.91/0.88/0.92
	300	0.65	16/1.5/130	19/1.8/156	23/2.1/187	28/2.6/225	34/3.1/274	1.09/1.13/1.11	0.92/0.88/0.93
	350	0.75	23/2.4/198	28/2.8/236	33/3.3/280	39/4.0/331	47/4.7/395	1.09/1.14/1.12	0.91/0.88/0.93
	400	0.85	31/3.4/272	37/4.0/323	43/4.7/380	51/5.5/445	60/6.4/524	1.11/1.16/1.13	0.91/0.87/0.92
	450	0.95	40/4.7/377	47/5.6/444	55/6.5/519	64/7.6/603	75/8.8/702	1.16/1.23/1.17	0.90/0.86/0.91
	CMBT SPD KIAS/MACH		59/8.1/631	69/9.3/724	79/10.5/821	89/11.8/925	102/13.2/1043	1.08/1.11/1.04	0.97/0.94/1.00
			472/0.99	471/0.99	471/0.99	470/0.99	469/0.99	0.98/0.98	1.01/1.01

Figure A8-11. (Sheet 2)

MAX AB Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
			GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	10/0.9/55	12/1.2/69	15/1.5/87	19/1.9/110	25/2.5/143	1.10/1.15/1.07	0.90/0.86/0.93
	300	0.79	18/2.0/107	23/2.4/134	28/3.0/165	35/3.7/204	43/4.6/256	1.10/1.14/1.08	0.90/0.86/0.93
	350	0.91	25/3.0/157	32/3.7/195	39/4.5/238	47/5.5/290	58/6.7/356	1.10/1.14/1.09	0.91/0.87/0.93
	400	1.02	33/4.1/215	41/5.1/266	49/6.2/323	60/7.5/390	73/9.0/472	1.11/1.16/1.11	0.90/0.86/0.92
	450	1.13	41/5.5/287	50/6.8/354	61/8.3/428	73/9.9/513	89/11.8/615	1.13/1.19/1.13	0.90/0.86/0.91
	500	1.25	48/7.0/367	59/8.6/452	72/10.4/545	86/12.4/649	103/14.7/773	1.17/1.24/1.16	0.90/0.85/0.90
	550	1.37	56/8.6/459	69/10.6/563	83/12.7/677	99/15.1/804	118/17.9/951	1.21/1.30/1.20	0.88/0.84/0.89
	600	1.49	64/10.5/565	78/12.9/692	94/15.4/830	112/18.3/982	134/21.5/1156	1.27/1.37/1.26	0.87/0.81/0.87
	650	1.62	73/12.8/699	90/15.7/855	108/18.8/1023	128/22.2/1207	151/26.0/1415	1.38/1.54/1.40	0.84/0.78/0.84
	700	1.75	86/16.4/901	105/20.0/1099	126/23.9/1312	149/28.1/1543	176/32.8/1801		0.79/0.72/0.78
	750	1.89	122/27.2/1487	149/33.1/1809	178/39.7/2167	212/47.2/2575	253/56.0/3053		0.62/0.51/0.58
	CMBT SPD KIAS/MACH		156/38.0/2055	186/44.8/2425	217/51.9/2809	251/59.2/3210	288/67.0/3636	1.09/1.05/0.93	0.60/0.51/0.58
			756/1.91	756/1.91	755/1.91	754/1.91	753/1.90	0.90/0.89	1.06/1.07

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
			GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	10/1.0/56	12/1.2/71	16/1.5/89	20/2.0/114	26/2.6/148	1.10/1.15/1.07	0.90/0.86/0.93
	300	0.79	19/2.0/110	23/2.5/138	29/3.1/171	36/3.9/212	45/4.8/266	1.10/1.15/1.08	0.90/0.86/0.93
	350	0.91	26/3.1/163	33/3.8/203	40/4.7/248	49/5.7/303	61/7.0/372	1.10/1.15/1.09	0.90/0.86/0.93
	400	1.02	35/4.5/232	43/5.5/287	53/6.7/349	64/8.1/422	78/9.8/512	1.12/1.17/1.12	0.90/0.86/0.92
	450	1.13	45/6.3/325	56/7.8/401	68/9.4/486	82/11.3/583	99/13.5/702	1.16/1.23/1.17	0.89/0.85/0.90
	500	1.25	55/8.3/432	68/10.2/532	83/12.2/642	99/14.6/767	119/17.4/916	1.23/1.31/1.23	0.88/0.84/0.88
	550	1.37	67/10.6/566	82/13.1/695	99/15.7/836	118/18.7/995	141/22.1/1180	1.33/1.45/1.34	0.86/0.81/0.86
	600	1.49	79/13.7/738	98/16.7/904	118/20.1/1085	140/23.8/1286	167/28.0/1516	1.56/1.77/1.62	0.83/0.77/0.82
	650	1.62	97/18.2/1001	119/22.3/1224	144/26.7/1466	171/31.6/1733	202/37.1/2035		0.77/0.69/0.75
	CMBT SPD KIAS/MACH		177/40.5/2254	212/48.4/2696	249/56.1/3127	287/64.2/3575	330/72.7/4051	1.10/1.05/0.93	0.92/0.96/1.08
			698/1.75	698/1.75	698/1.75	697/1.75	696/1.74	0.89/0.88	1.12/1.13

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
			GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	11/1.1/65	14/1.4/82	18/1.8/104	23/2.3/134	32/3.1/181	1.11/1.15/1.08	0.90/0.86/0.93
	300	0.79	22/2.3/128	27/2.9/159	33/3.6/197	42/4.5/246	54/5.7/317	1.10/1.15/1.08	0.90/0.86/0.93
	350	0.91	31/3.6/190	38/4.4/234	46/5.4/286	57/6.6/351	72/8.2/439	1.10/1.15/1.10	0.90/0.86/0.92
	400	1.02	43/5.5/284	52/6.7/349	64/8.2/423	77/9.9/513	96/12.1/631	1.14/1.20/1.15	0.89/0.85/0.91
	450	1.13	59/8.4/433	72/10.3/530	88/12.4/641	106/15.0/774	131/18.2/943	1.24/1.33/1.26	0.87/0.83/0.88
	500	1.25	76/11.7/613	93/14.2/748	112/17.1/900	135/20.5/1079	164/24.7/1302	1.42/1.56/1.46	0.85/0.81/0.85
	550	1.37	99/16.6/890	121/20.2/1083	145/24.3/1300	174/29.0/1553	211/34.7/1861		0.80/0.74/0.79
	600	1.49	138/25.9/1416	168/31.5/1722	203/37.8/2071	243/45.1/2472	292/53.9/2954		0.68/0.61/0.65
	CMBT SPD KIAS/MACH		230/48.9/2739	272/57.4/3209	316/66.2/3696	363/75.2/4194	411/83.4/4643	0.93/0.86/0.76	0.90/0.94/1.08
			627/1.56	627/1.56	625/1.55	623/1.55	620/1.54	0.86/0.86	1.14/1.16

Figure A8-12. (Sheet 1)

MAX AB Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	13/1.3/75	17/1.6/95	21/2.1/121	28/2.8/160	41/4.0/233	1.11/1.16/1.09	0.89/0.85/0.92
	300	0.79	25/2.7/148	31/3.4/184	39/4.2/228	49/5.3/289	66/7.0/390	1.11/1.16/1.09	0.89/0.85/0.92
	350	0.91	36/4.2/221	44/5.1/271	54/6.3/332	67/7.7/411	87/9.9/532	1.11/1.16/1.10	0.90/0.86/0.92
	400	1.02	53/7.0/361	65/8.6/443	80/10.5/541	99/12.9/665	126/16.2/845	1.22/1.30/1.24	0.87/0.83/0.89
	450	1.13	86/12.8/658	106/15.8/810	131/19.4/996	163/24.1/1238	209/30.8/1587	1.76/1.96/1.85	0.82/0.77/0.82
	500	1.25	125/20.5/1079	154/25.1/1322	188/30.7/1617	233/37.9/1996	296/47.8/2527		0.76/0.71/0.74
	CMBT SPD KIAS/MACH		235/43.8/2385	271/50.0/2715	309/56.1/3041	344/61.1/3296	399/69.4/3729	1.05/1.01/0.91	1.39/1.54/1.76
			533/1.33	531/1.32	528/1.31	523/1.30	519/1.29	0.89/0.90	1.17/1.17

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DI = 200	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	15/1.5/87	19/1.9/110	25/2.5/143	35/3.4/199	59/5.7/333	1.12/1.17/1.09	0.88/0.84/0.91
	300	0.79	29/3.1/171	36/3.9/213	45/4.9/267	59/6.3/348	89/9.2/516	1.12/1.16/1.10	0.89/0.85/0.92
	350	0.91	41/4.9/257	51/5.9/315	63/7.3/387	80/9.2/490	113/12.6/682	1.12/1.17/1.11	0.89/0.85/0.91
	400	1.02	78/10.8/550	100/14.0/714					
	CMBT SPD KIAS/MACH		112/16.6/839	123/17.7/899	128/17.9/915	145/19.7/1010	171/21.8/1140	0.91/0.90/0.87	3.04/3.56/3.81
			407/1.04	404/1.03	399/1.02	395/1.01	391/1.00	0.97/0.98	1.23/1.20

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DI = 250	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	16/1.5/89	20/2.0/114	26/2.6/149	37/3.6/208	64/6.2/363	1.12/1.17/1.10	0.88/0.84/0.91
	300	0.79	30/3.3/178	37/4.0/221	47/5.1/279	62/6.6/367	96/9.9/558	1.12/1.17/1.10	0.89/0.85/0.91
	350	0.91	43/5.1/270	53/6.3/331	66/7.7/409	85/9.8/520	122/13.6/739	1.12/1.17/1.11	0.89/0.85/0.91
	CMBT SPD KIAS/MACH		77/10.5/535	91/12.2/623	107/14.1/725	128/16.6/859	169/20.9/1101	1.08/1.11/1.07	0.92/0.88/0.94
			388/1.00	387/0.99	385/0.99	384/0.99	382/0.98	0.99/0.99	1.01/1.01

Figure A8-12. (Sheet 2)

MAX AB Accelerations — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	18/2.2/75	24/2.9/99	33/3.9/135	49/5.8/197	91/10.5/358	1.09/1.15/1.11	0.93/0.88/0.89
	300	0.97	33/4.3/145	44/5.6/189	57/7.4/248	79/10.1/340	130/16.1/542	1.10/1.16/1.10	0.91/0.86/0.90
	350	1.10	49/6.9/230	64/9.0/298	83/11.6/385	112/15.5/514	172/23.0/766	1.14/1.20/1.14	0.89/0.85/0.90
	400	1.24	64/9.6/320	82/12.3/410	106/15.8/525	140/20.6/686	206/29.3/977	1.19/1.26/1.20	0.89/0.84/0.89
	450	1.37	77/12.4/420	99/15.8/535	126/20.0/678	165/25.8/872	236/35.5/1200	1.25/134/1.25	0.88/0.83/0.87
	500	1.52	90/15.5/535	115/19.6/677	146/24.6/850	189/31.3/1078	264/42.0/1444	1.31/1.42/1.30	0.87/0.81/0.86
	550	1.67	105/19.1/673	133/24.1/848	167/30.0/1056	214/37.7/1321	294/49.6/1729	1.40/1.54/1.40	0.84/0.78/0.83
	600	1.83	123/24.2/870	156/30.4/1090	195/37.7/1348	246/46.7/1668	331/60.1/2135		0.80/0.73/0.79
	650	2.00	165/37.0/1335	208/46.6/1678	261/58.0/2087	330/72.5/2604	438/93.2/3335		0.67/0.57/0.63
	LIMIT SPD KIAS/MACH		222/55.4/1975	270/66.6/2378	326/78.8/2818	394/93.0/3325	496/111.4/3979	1.13/1.08/0.96	0.55/0.44/0.49
			661/2.03	660/2.03	659/2.03	657/2.02	655/2.01	0.89/0.88	1.01/1.01

*BASED ON 202 KIAS/0.68 MACH.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	19/2.3/78	26/3.0/104	35/4.2/143	53/6.2/212	92/10.7/365	1.10/1.15/1.12	0.93/0.88/0.89
	300	0.97	36/4.6/155	47/6.0/203	62/8.0/268	87/11.1/373	137/17.1/577	1.11/1.16/1.11	0.90/0.86/0.89
	350	1.10	56/8.0/265	73/10.4/345	96/13.7/453	133/18.6/618	200/27.6/915	1.17/1.24/1.18	0.88/0.83/0.88
	400	1.24	75/11.5/381	97/14.9/493	127/19.3/640	171/25.7/854	248/36.6/1215	1.26/1.35/1.27	0.87/0.82/0.87
	450	1.37	94/15.4/522	121/19.8/670	156/25.4/859	207/33.2/1124	293/45.8/1548	1.39/1.52/1.41	0.86/0.81/0.85
	500	1.52	114/20.1/697	146/25.6/888	187/32.5/1125	244/41.8/1446	338/56.1/1934	1.57/1.76/1.61	0.83/0.78/0.82
	550	1.67	138/26.3/935	176/33.4/1183	224/41.9/1482	289/53.1/1874	390/69.5/2443		0.78/0.72/0.76
	600	1.83	186/39.8/1451	236/50.1/1825	297/62.6/2276	379/78.5/2848	501/100.6/3632		0.67/0.58/0.62
	CMBT SPD KIAS/MACH		260/61.7/2273	318/74.3/2734	384/88.2/3238	466/104.1/3812	582/124.5/4535	1.19/1.13/0.99	0.64/0.58/0.64
			614/1.88	614/1.87	612/1.87	610/1.86	608/1.86	0.88/0.87	1.09/1.10

*BASED ON 204 KIAS/0.68 MACH.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	23/2.8/95	32/3.7/128	45/5.4/183	80/9.3/316	85/10.2/354	1.11/1.16/1.13	0.92/0.88/0.89
	300	0.97	44/5.7/191	58/7.5/252	79/10.2/343	125/15.8/530	150/19.5/661	1.12/1.18/1.12	0.90/0.85/0.89
	350	1.10	78/11.3/372	103/15.0/495	143/20.8/685	224/32.0/1056	345/51.7/1702	1.29/1.38/1.31	0.84/0.80/0.84
	400	1.24	108/17.0/563	143/22.4/742	196/30.5/1009	293/44.9/1487	441/69.4/2292	1.53/1.67/1.57	0.83/0.78/0.83
	450	1.37	144/24.5/832	189/31.9/1085	254/42.6/1447	368/60.6/2052	539/89.8/3029		0.80/0.75/0.79
	500	1.52	192/35.6/1249	249/45.9/1611	330/60.2/2108	463/82.6/2877	657/117.3/4058		0.73/0.67/0.70
	550	1.67	322/69.0/2519	424/91.0/3325					
	CMBT SPD KIAS/MACH		350/76.4/2803	431/92.8/3394	531/111.9/4073	686/139.7/5045	899/178.9/6395	1.09/0.99/0.85	0.90/0.95/1.09
			552/1.68	550/1.67	548/1.67	546/1.66	543/1.65	0.80/0.81	1.16/1.17

*BASED ON 215 KIAS/0.72 MACH.

Figure A8-13. (Sheet 1)

MAX AB Accelerations — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F100-PW-229**

- **STANDARD DAY TEMPERATURE (−56°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 150	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	29/3.4/116	40/4.7/162	63/7.3/251	91/10.9/372	81/10.1/351	1.11/1.16/1.13	0.92/0.88/0.88
	300	0.97	55/7.1/239	74/9.6/323	109/14.0/470	159/20.6/694		1.14/1.19/1.13	0.89/0.84/0.88
	350	1.10	130/19.6/643	196/29.8/977					0.72/0.67/0.72
	400	1.24	196/31.9/1053	288/47.0/1551					0.71/0.66/0.70
	450	1.37	357/65.8/2284	539/99.8/3469					0.53/0.48/0.49
	CMBT SPD KIAS/MACH		439/84.0/2965	558/104.0/3624	225/32.6/1074	197/26.5/885	203/27.8/934	0.32/0.26/0.23	1.09/1.19/1.38
			459/1.40	451/1.38	323/1.03	308/0.99	300/0.96	0.71/0.74	1.23/1.23

* BASED ON 209 KIAS/0.70 MACH.
** BASED ON 226 KIAS/0.75 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 200	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	36/4.2/145	53/6.2/213	103/11.9/407	90/11.0/383	51/6.6/226	1.11/1.17/1.14	0.92/0.87/0.88
	300	0.97	71/9.2/310	101/13.2/442	177/22.7/760			1.16/1.22/1.16	0.87/0.83/0.86
	CMBT SPD KIAS/MACH		107/15.0/496	132/18.1/601	195/25.4/850	196/26.3/887	183/25.1/840	1.07/1.11/1.05	1.04/1.02/1.08
			312/1.00	308/0.99	303/0.97	295/0.95	286/0.93	0.99/0.99	1.02/1.02

* BASED ON 220 KIAS/0.73 MACH.
** BASED ON 241 KIAS/0.80 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.67	0/0/0	0/0/0	0/0/0*	0/0/0**	0/0/0***	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	38/4.5/154	58/6.8/232	105/12.3/418	95/11.7/407	14/1.9/63	1.12/1.17/1.14	0.91/0.87/0.88
	300	0.97	82/10.8/363	125/16.6/555					0.84/0.79/0.83
	CMBT SPD KIAS/MACH		104/14.2/473	132/17.7/590	193/25.0/836	196/26.0/882	168/23.1/771	1.08/1.12/1.07	0.92/0.88/0.93
			305/0.98	301/0.97	296/0.95	288/0.93	279/0.91	0.99/0.99	1.01/1.01

* BASED ON 203 KIAS/0.68 MACH.
** BASED ON 222 KIAS/0.74 MACH.
*** BASED ON 248 KIAS/0.82 MACH.

Figure A8-13. (Sheet 2)

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:

- **DRAG INDEX = 0**
- **GW = 22,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MIL**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

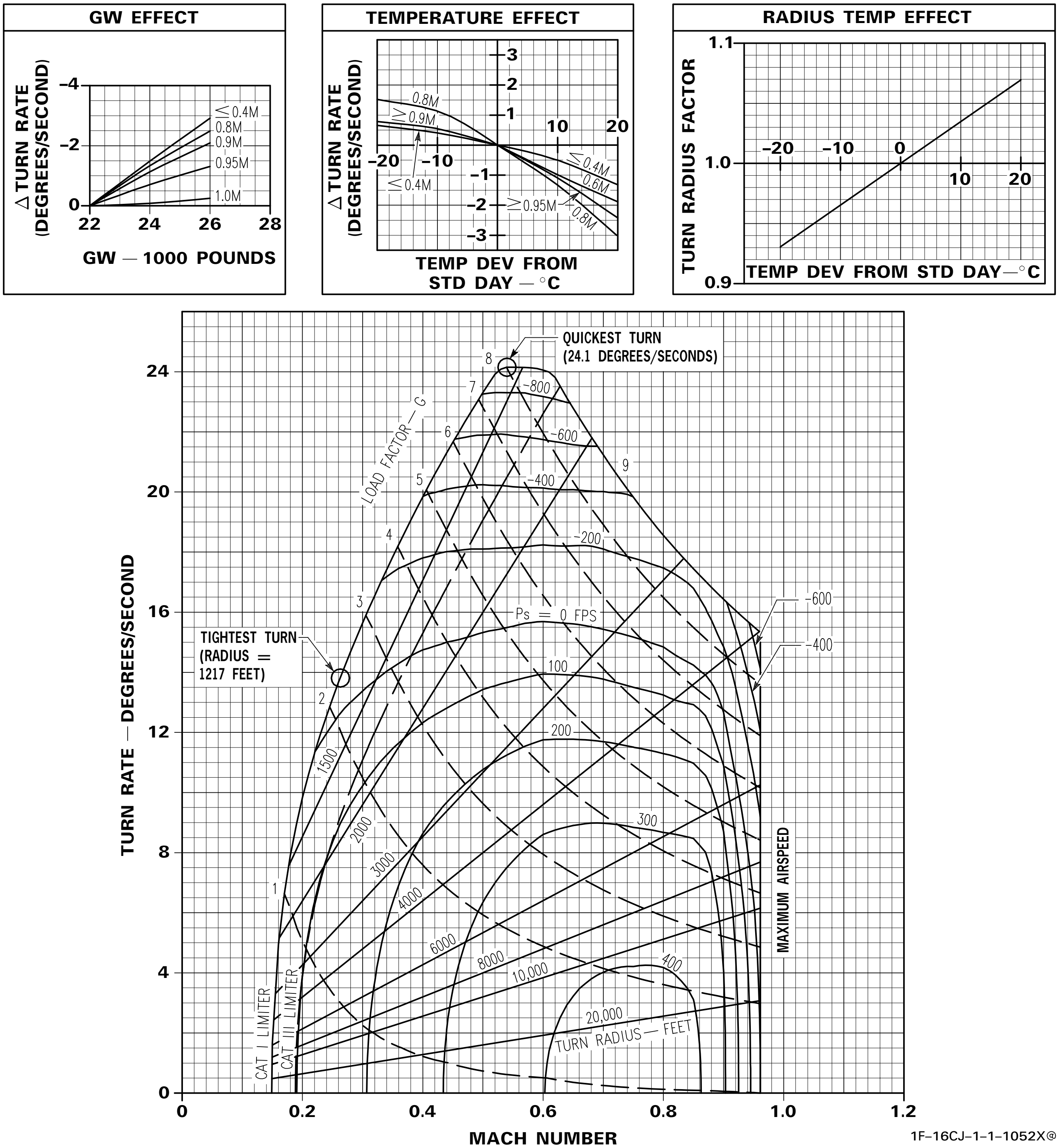


Figure A8-14.

Turn Performance — 5000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100-PW-229**

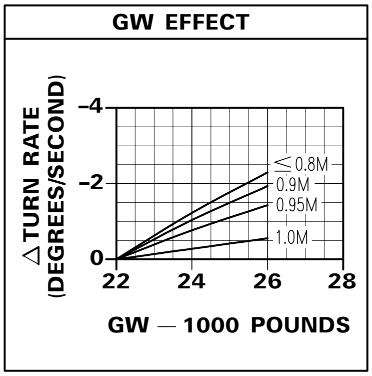
CONFIGURATION:

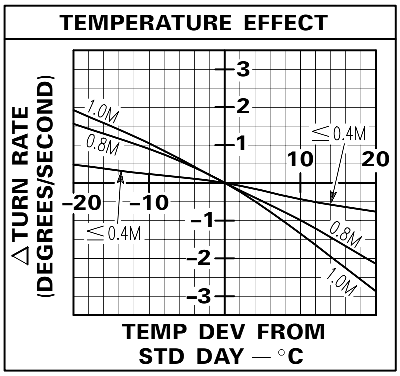
- DRAG INDEX = 0
- GW = 22,000 POUNDS

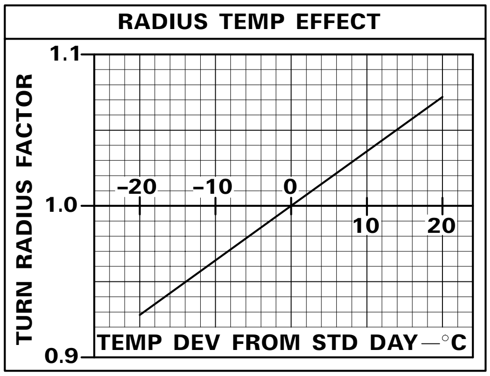
CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







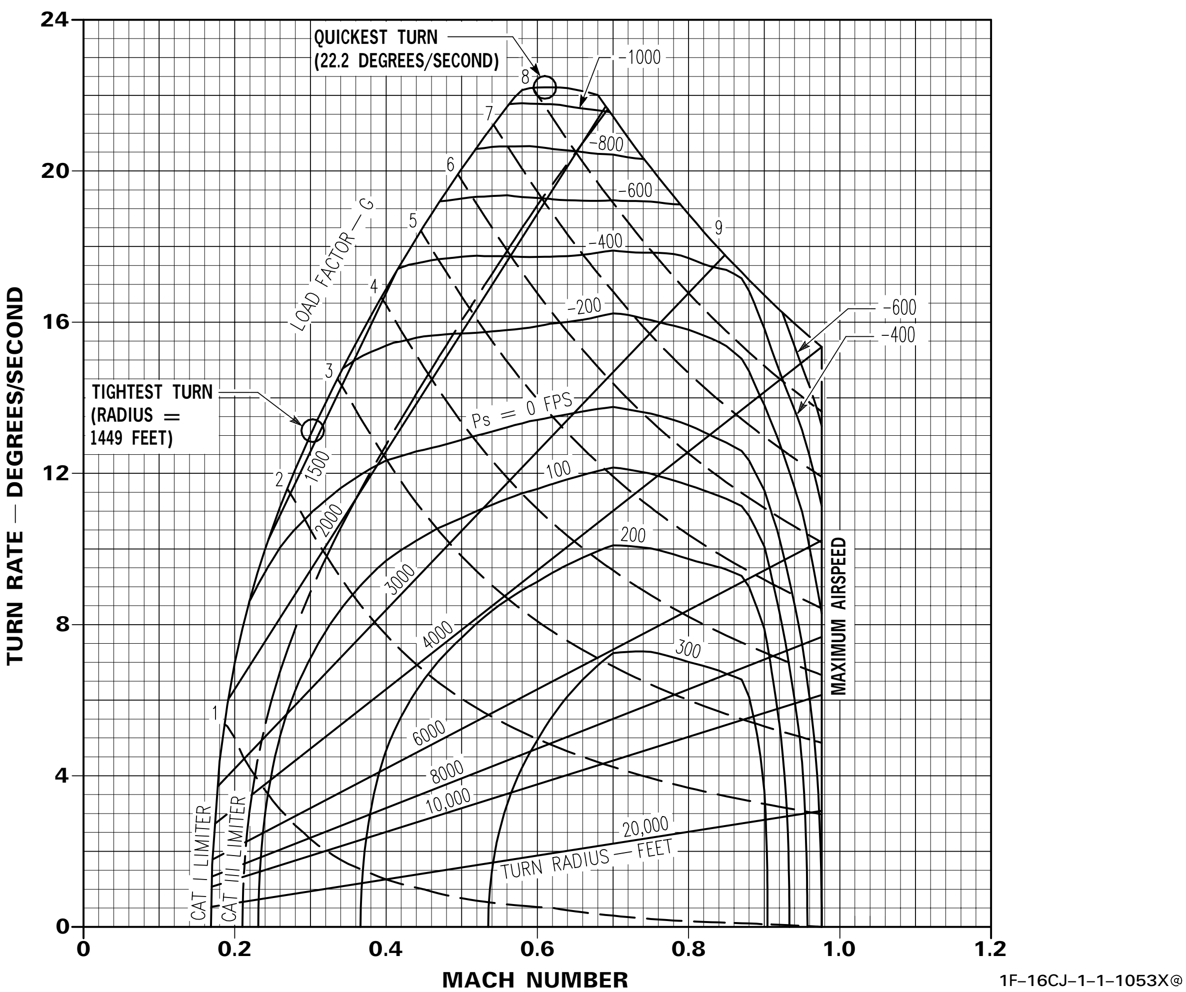


Figure A8-15.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

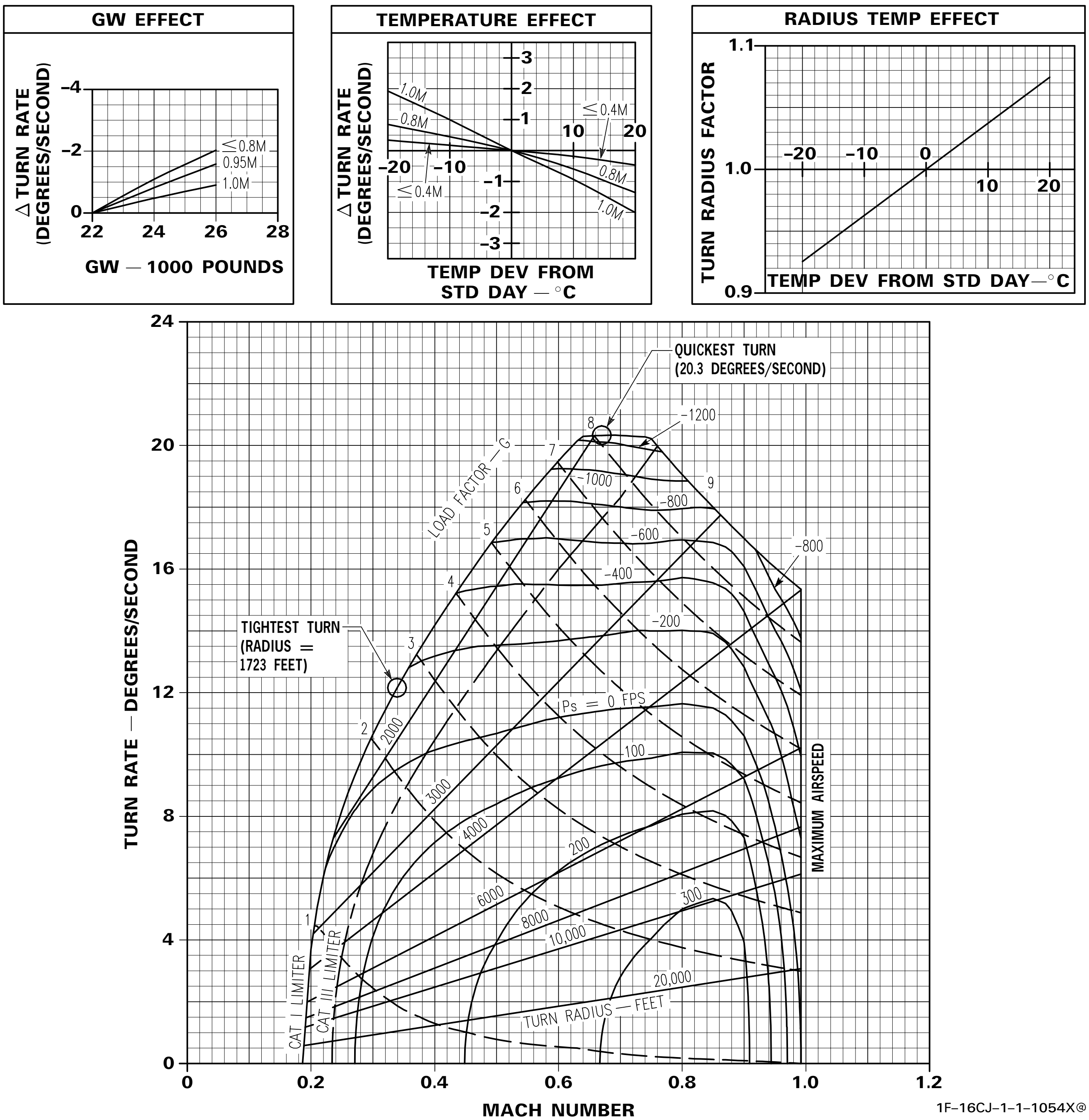


Figure A8-16.

Turn Performance — 15,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

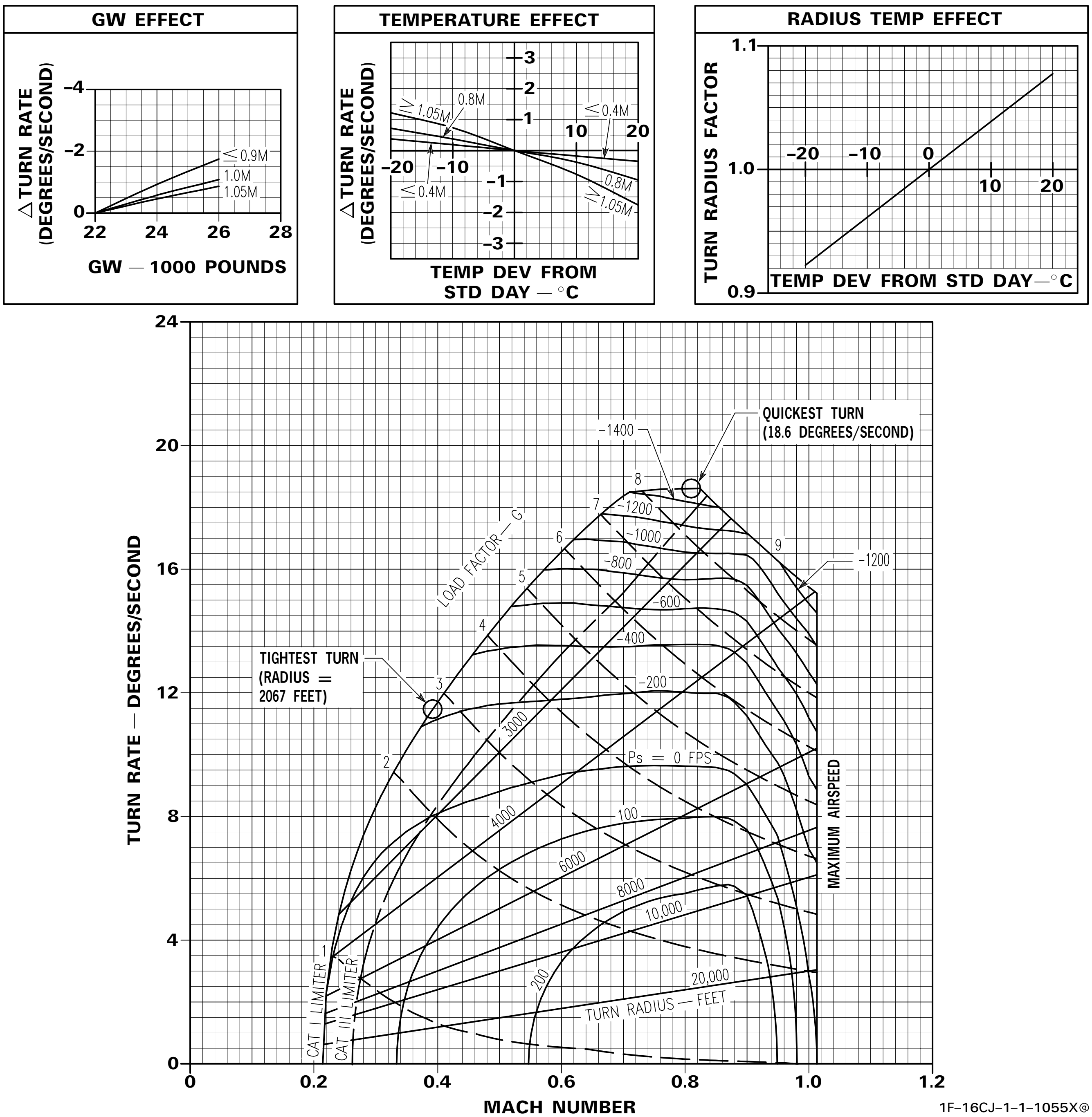


Figure A8-17.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

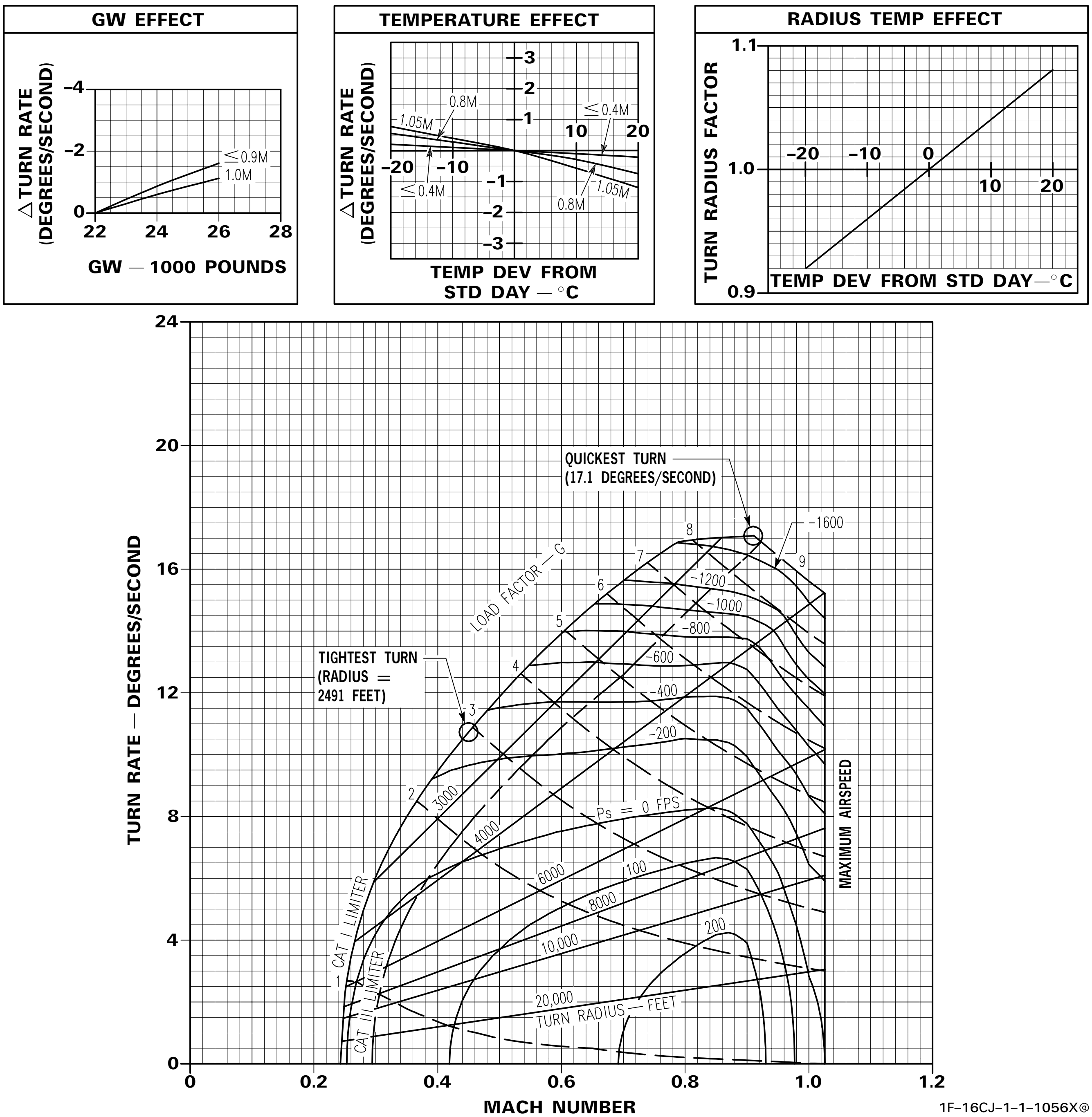


Figure A8-18.

Turn Performance — 25,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

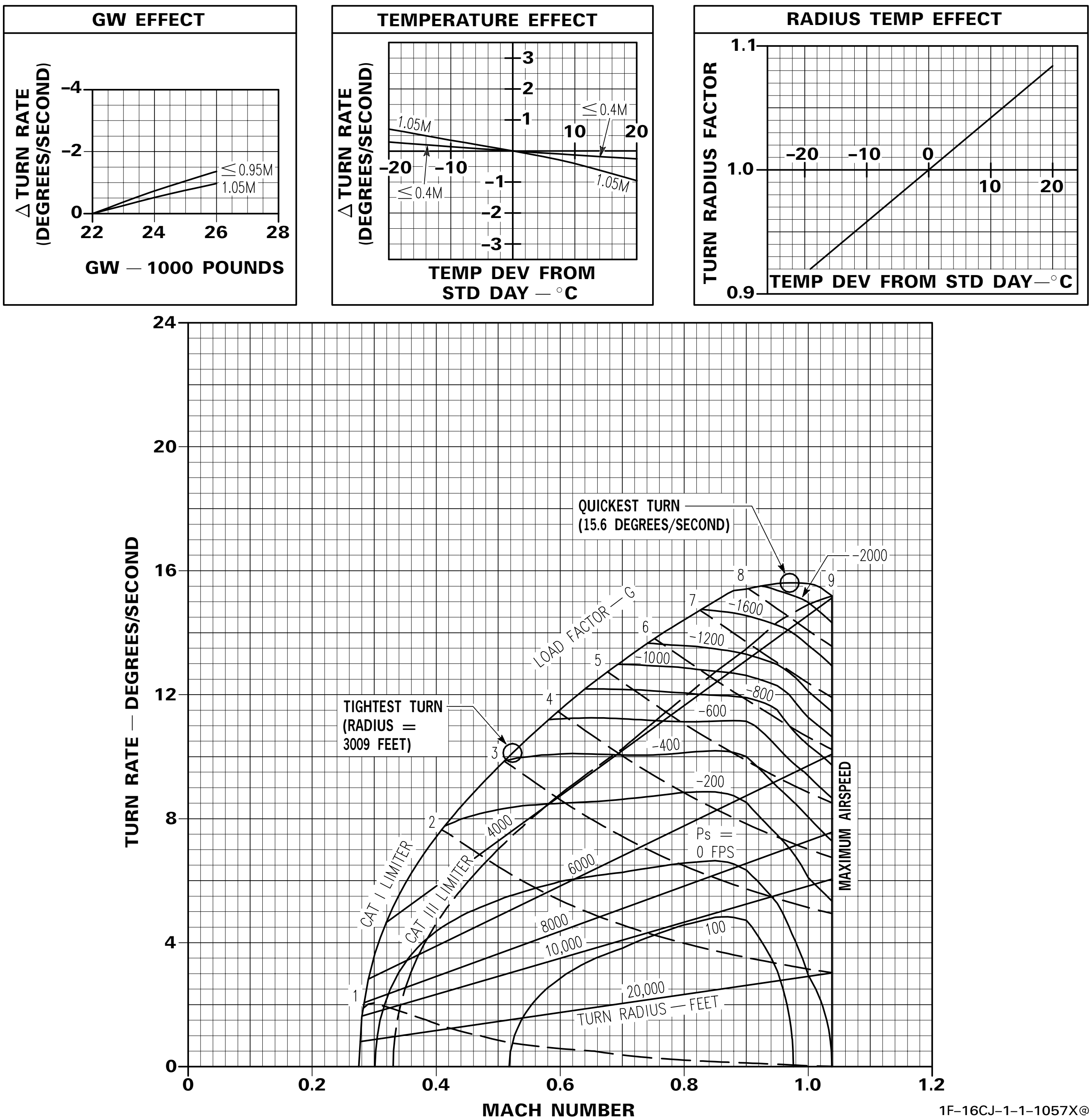


Figure A8-19.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

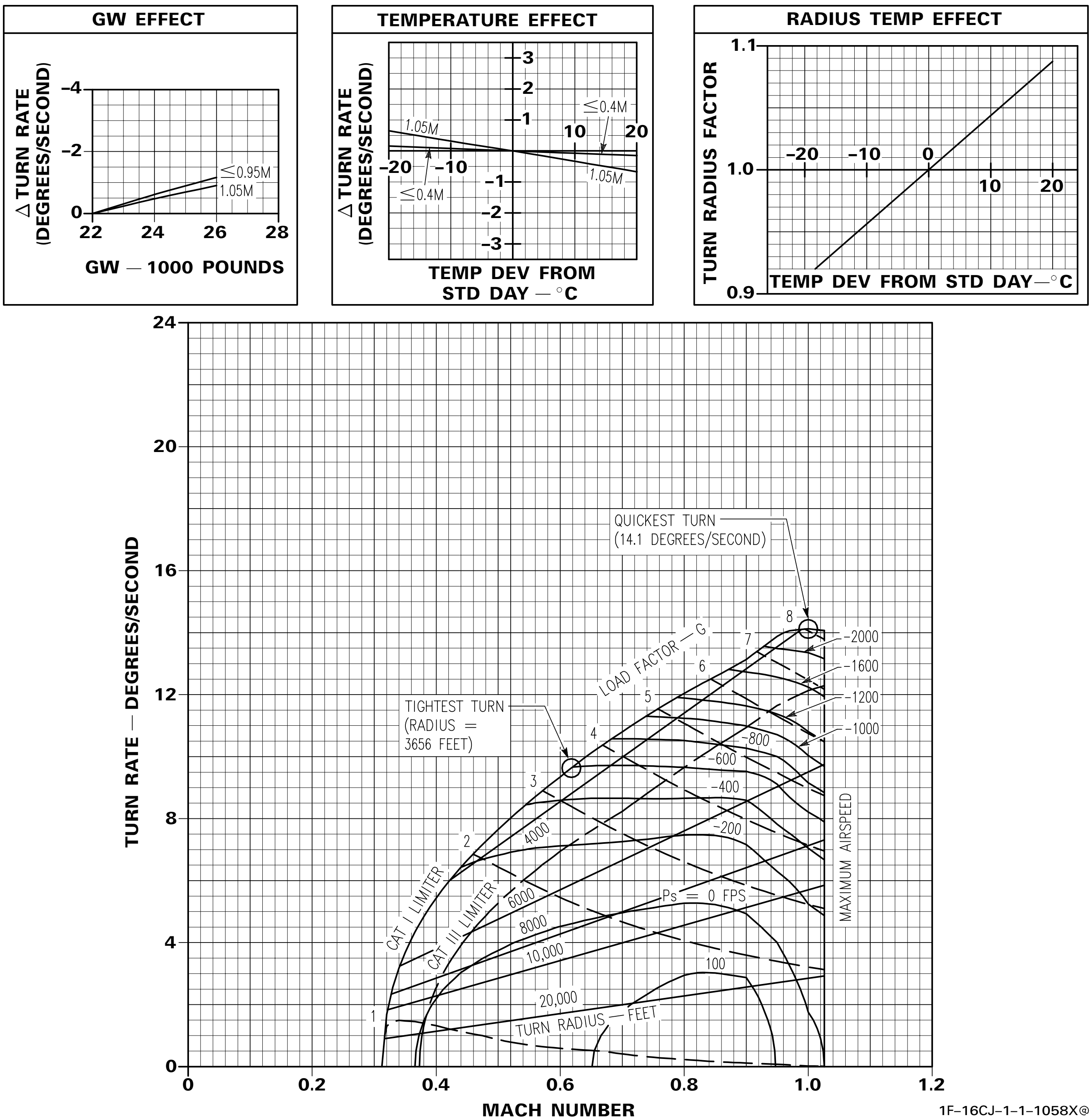


Figure A8-20.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

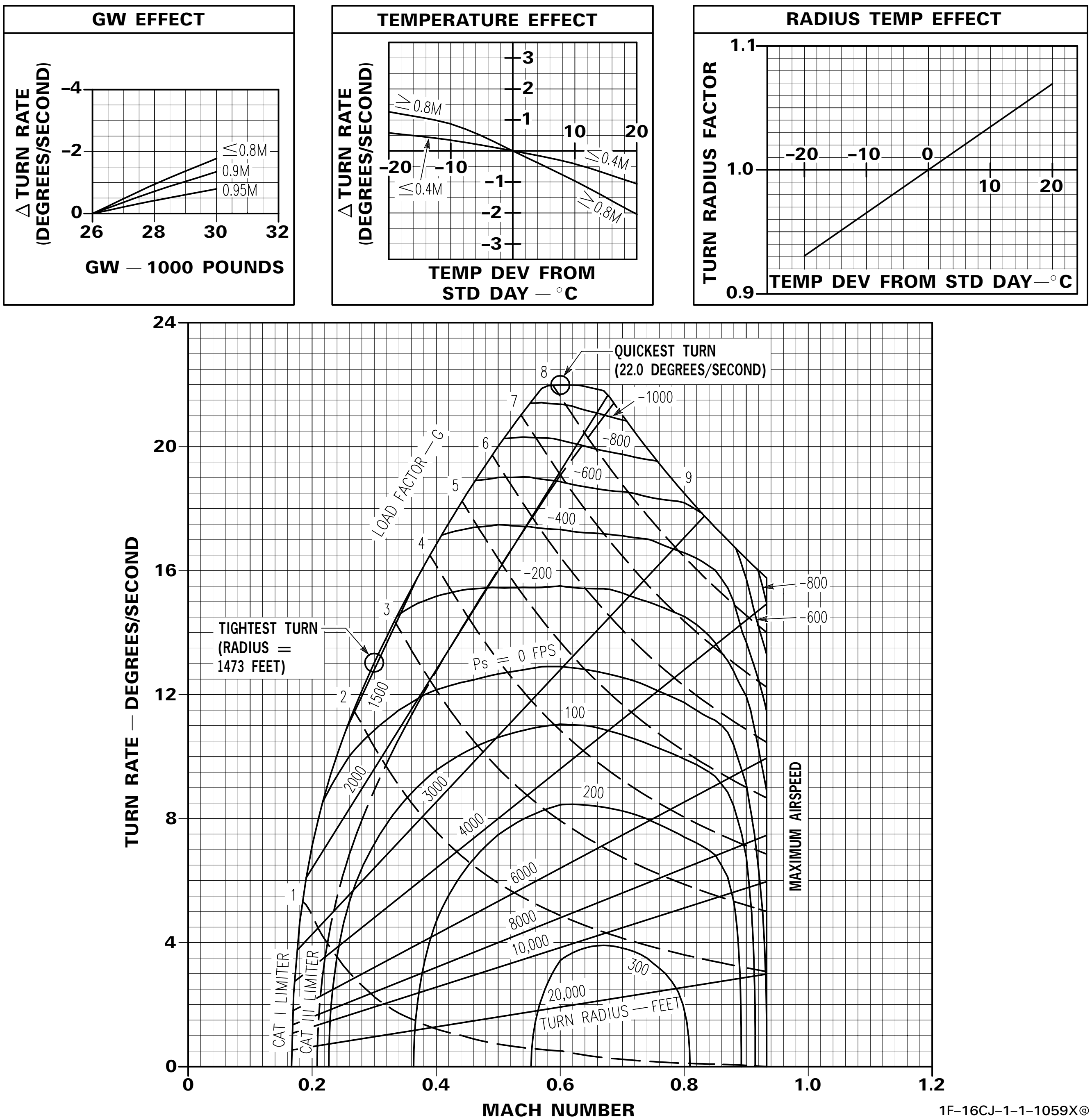


Figure A8-21.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- **DRAG INDEX = 50**
- **GW = 26,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MIL**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

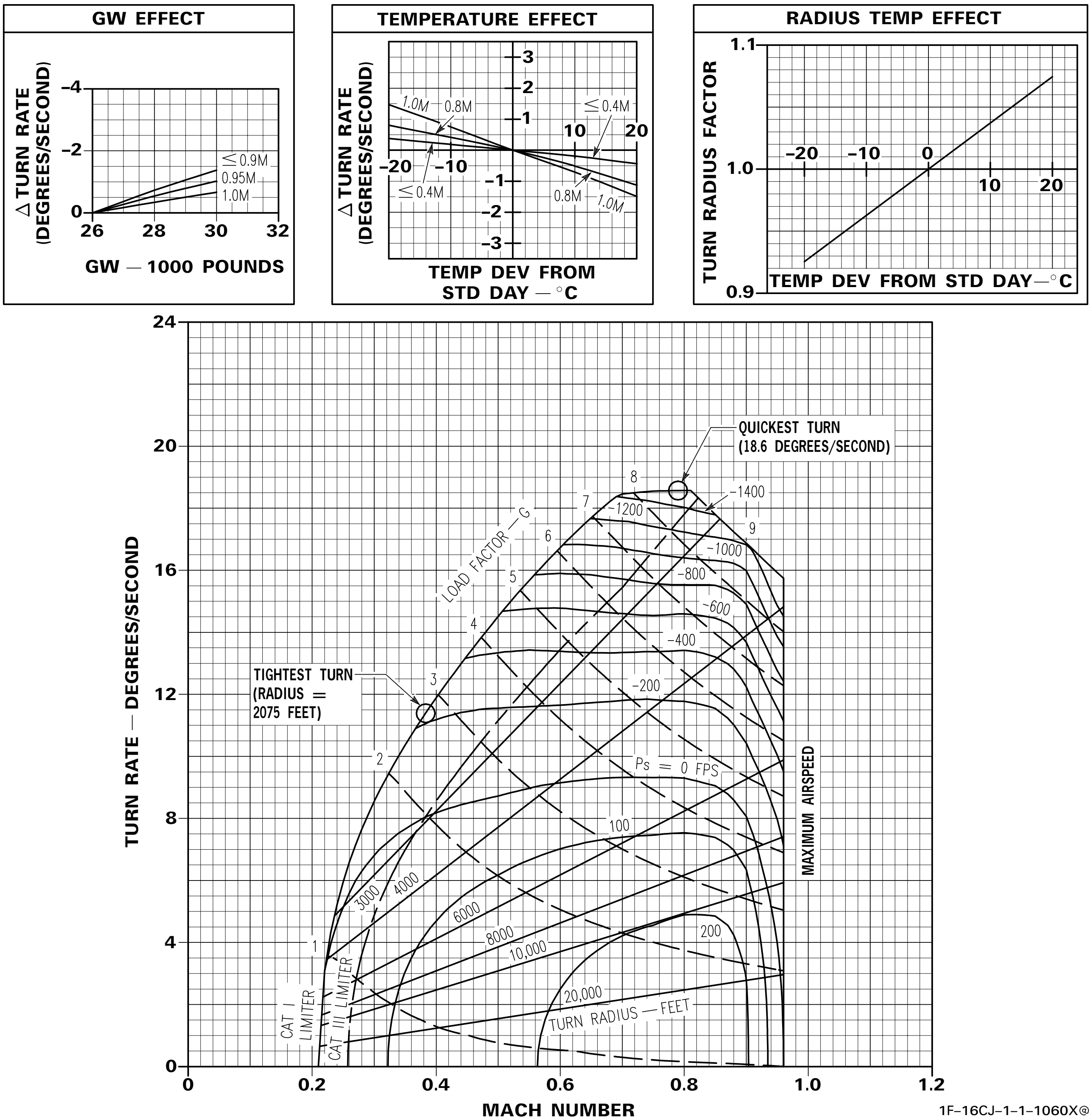


Figure A8-22.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

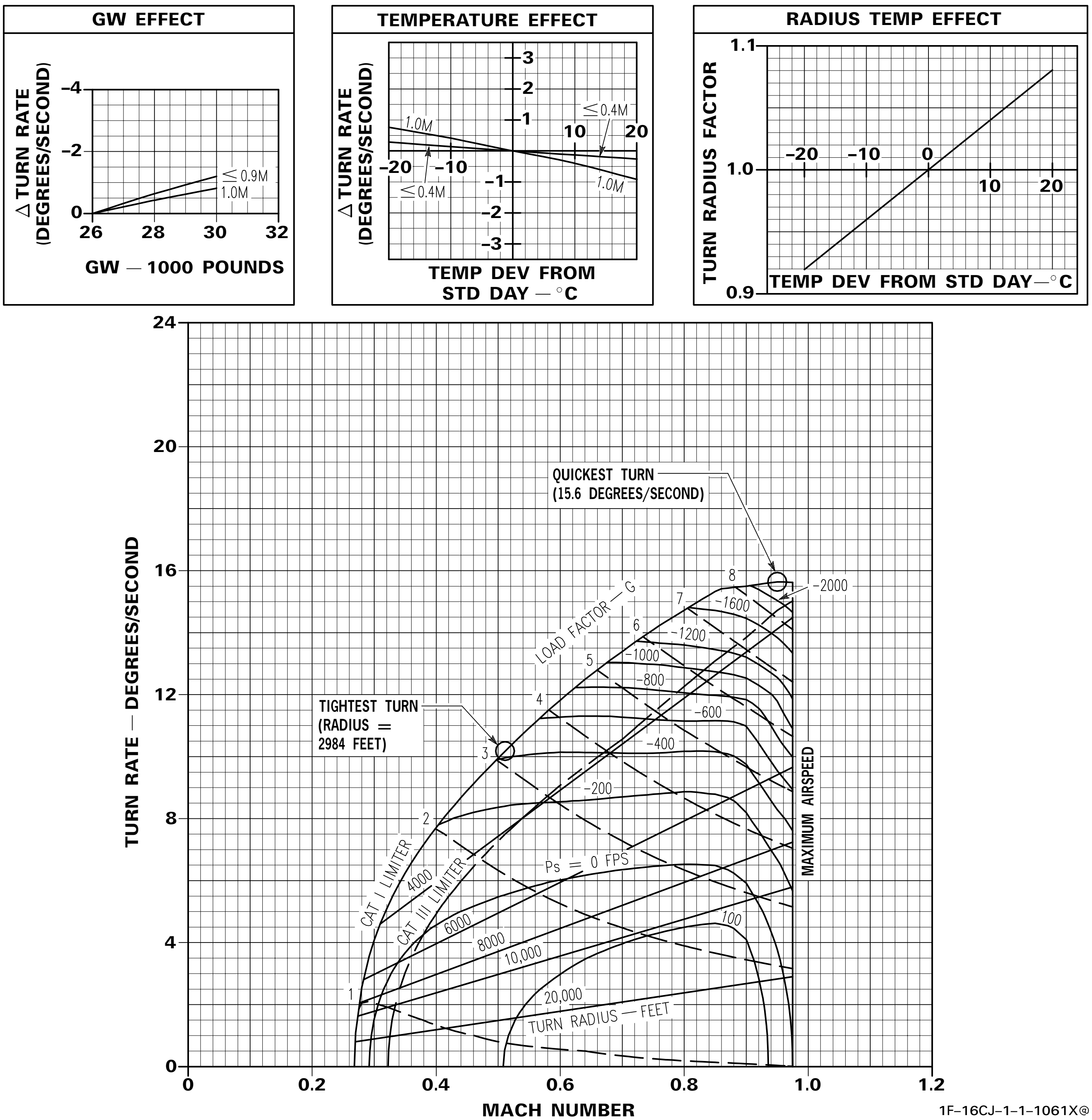


Figure A8-23.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

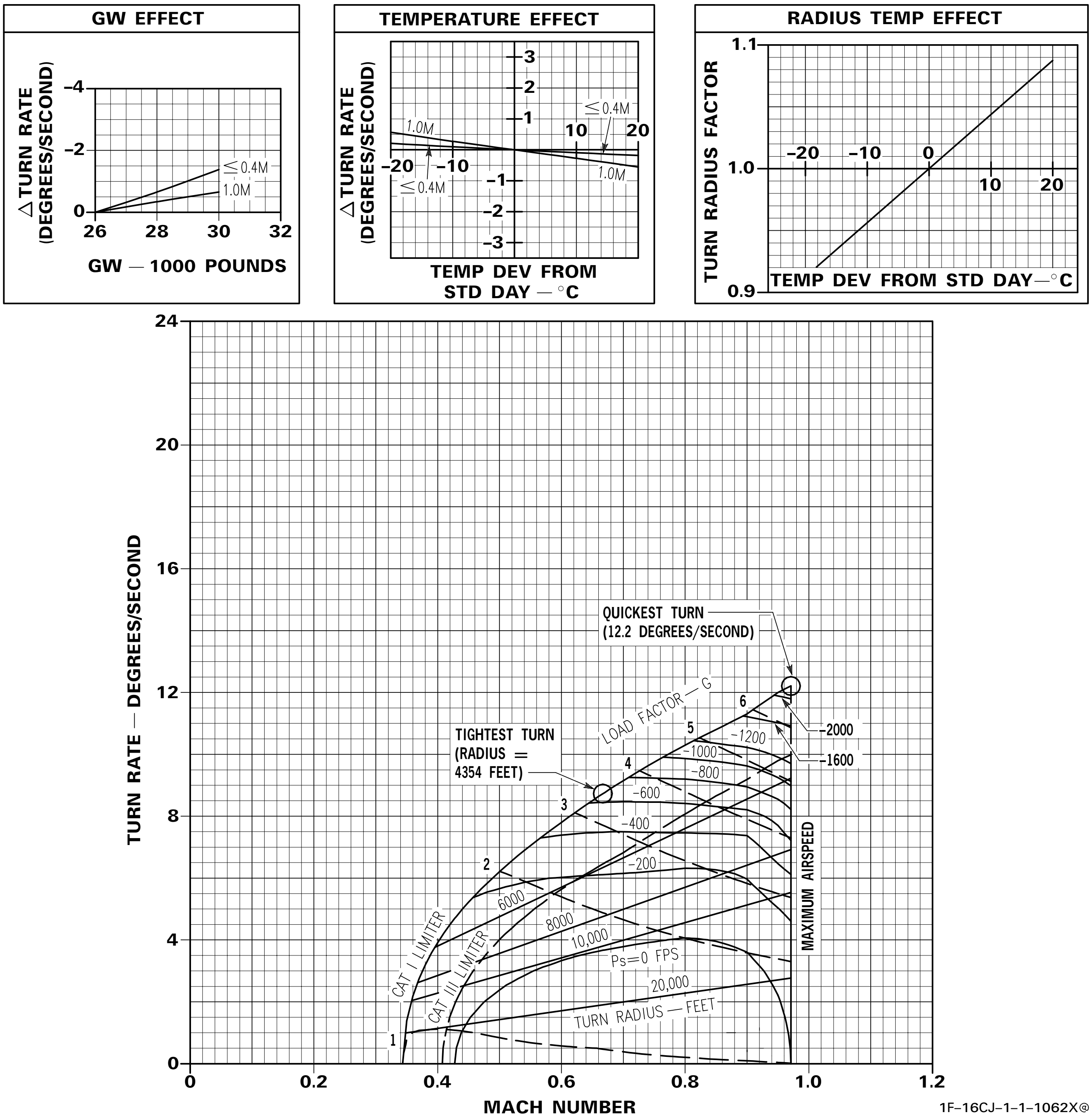


Figure A8-24.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

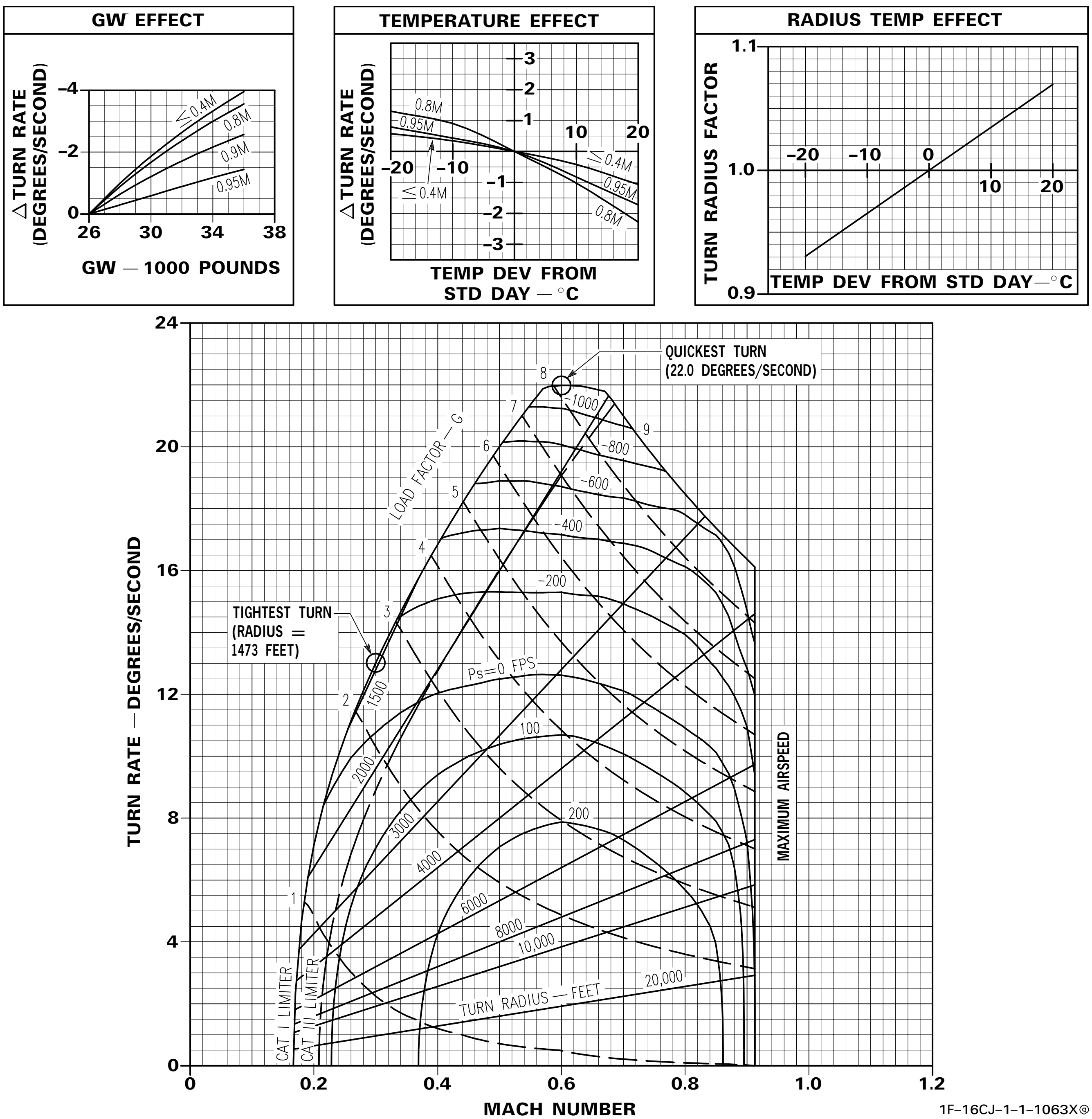


Figure A8-25.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:

- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

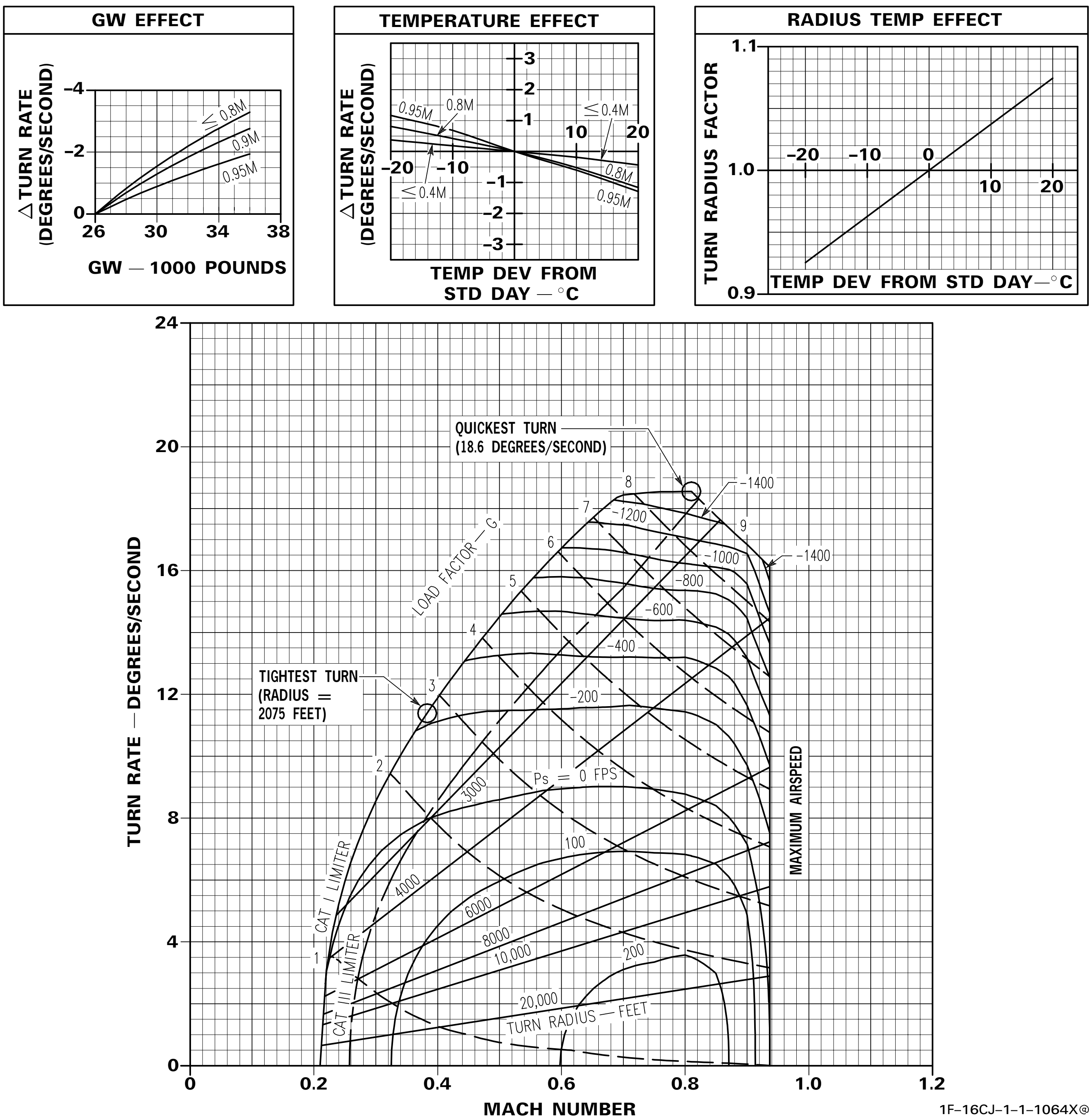


Figure A8-26.

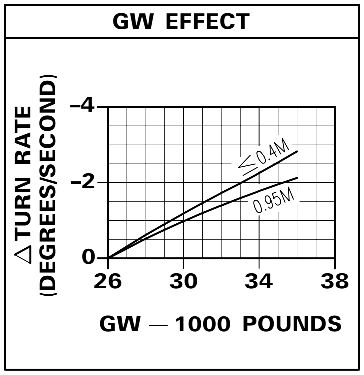
Turn Performance — 20,000 Feet

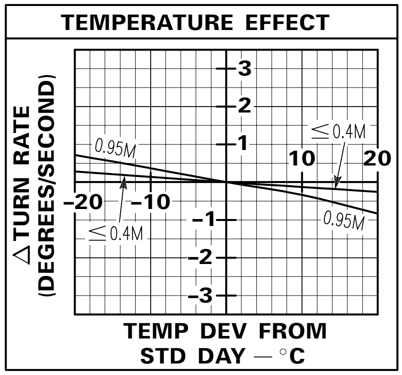
DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

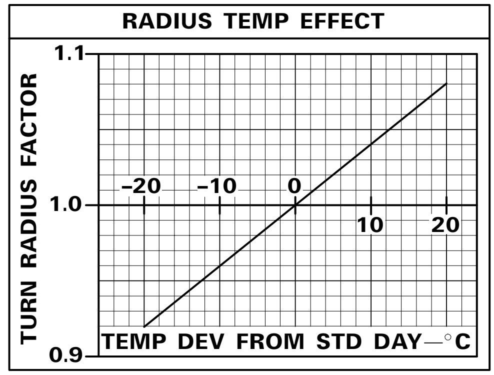
CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







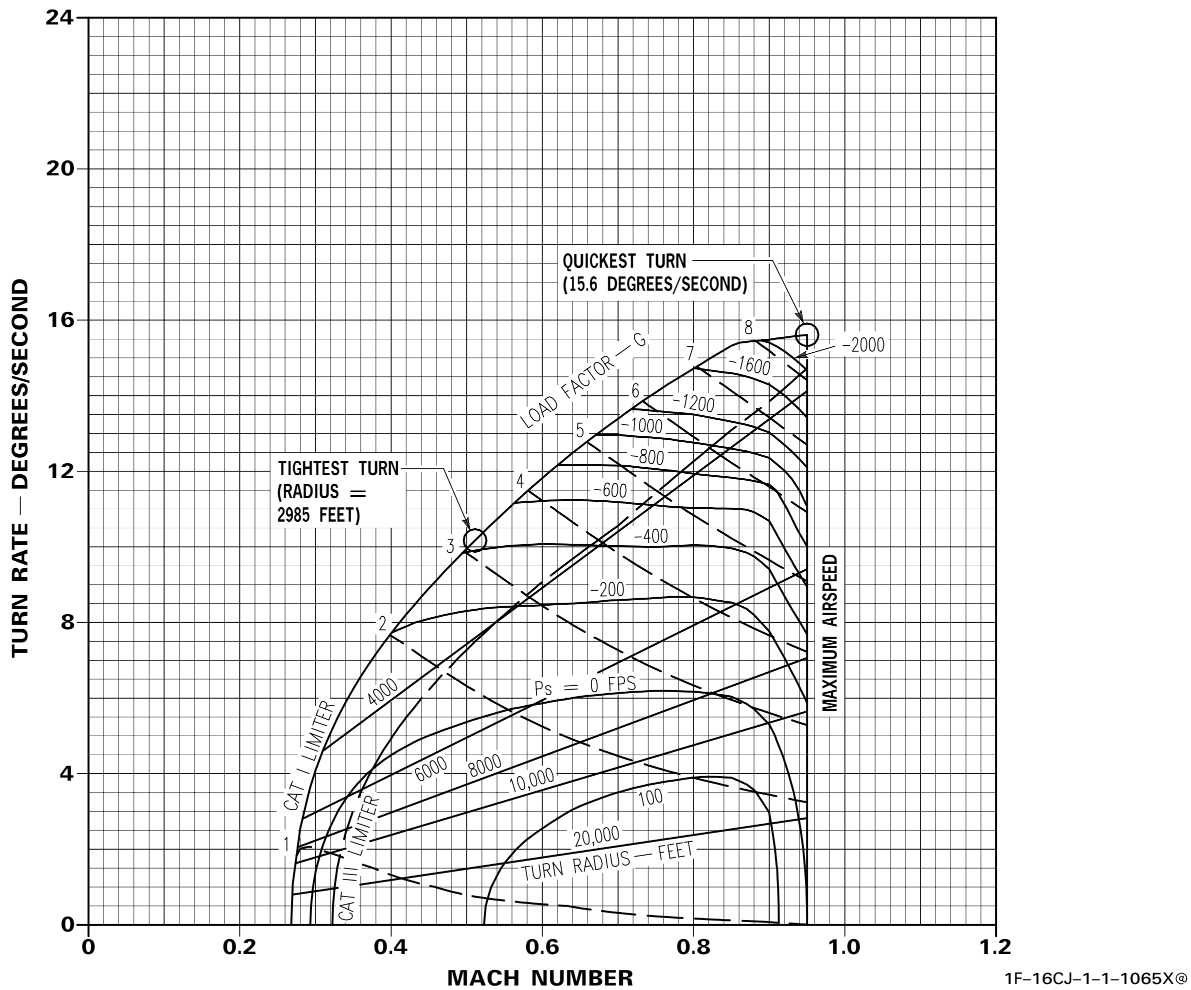


Figure A8-27.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

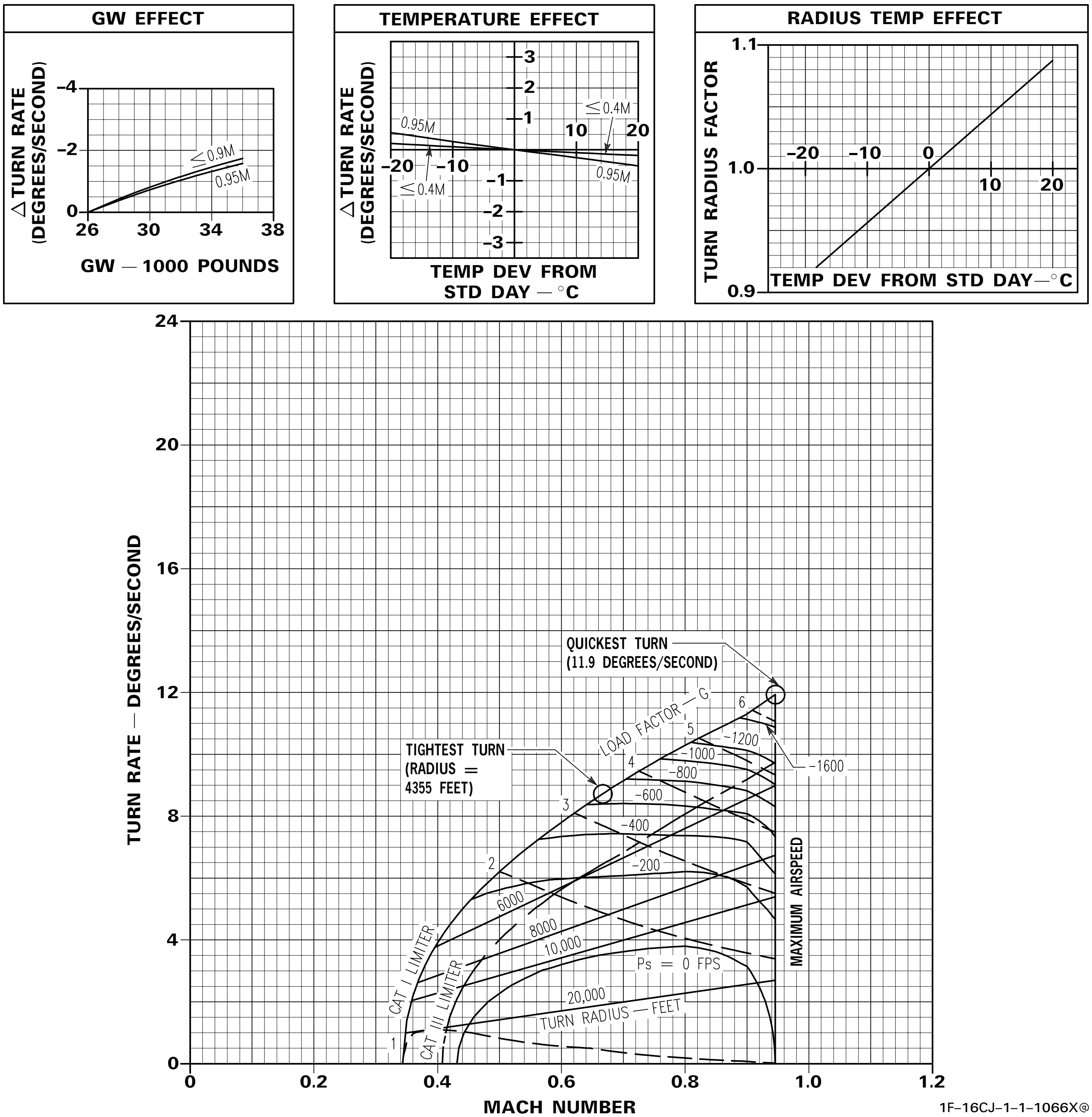


Figure A8-28.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

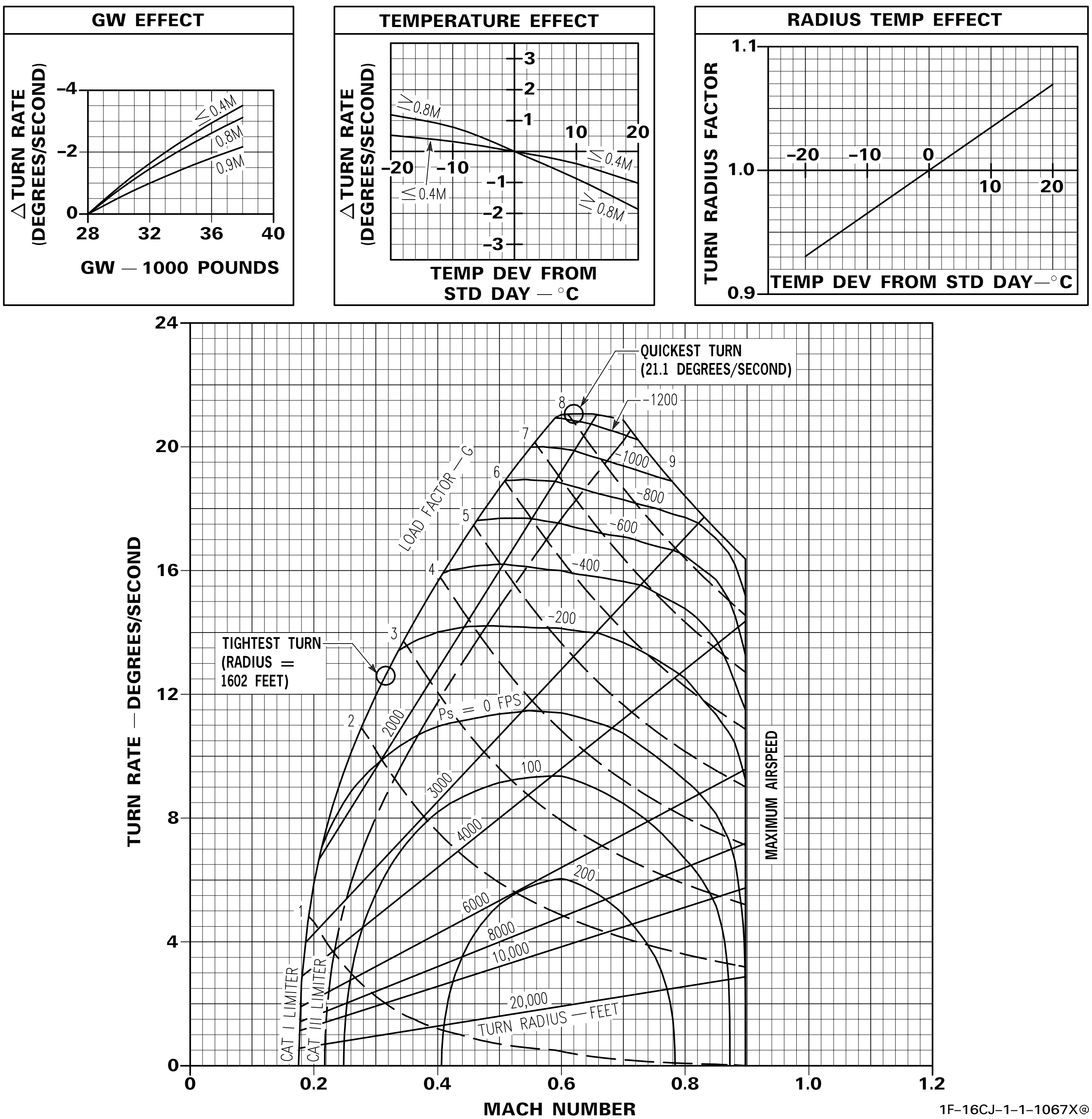


Figure A8-29.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

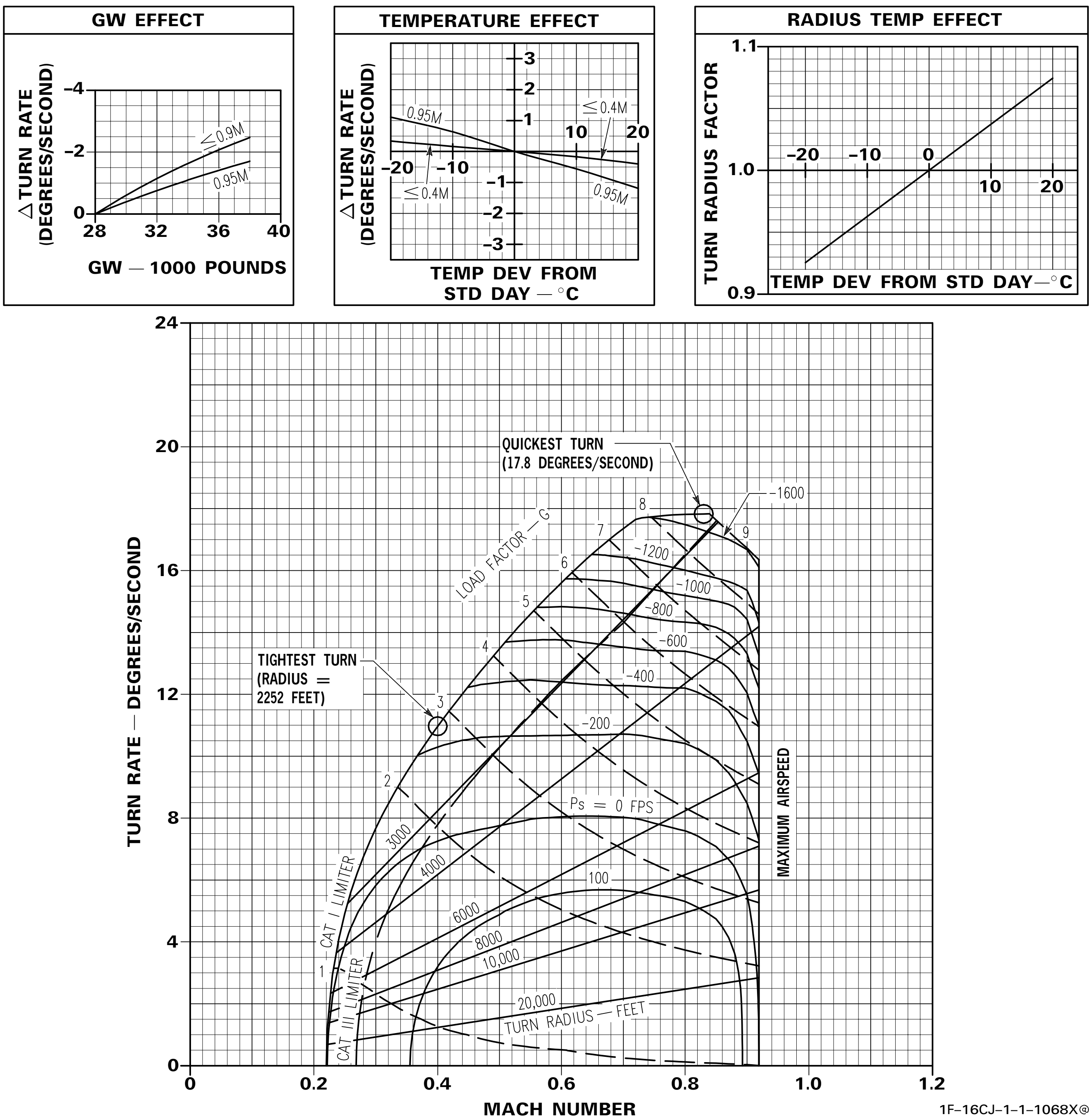


Figure A8-30.

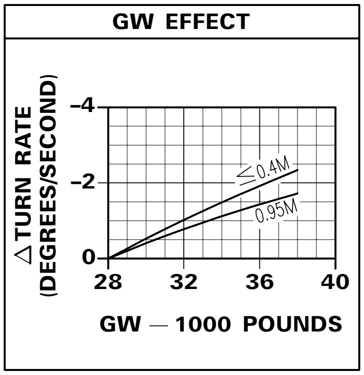
Turn Performance — 20,000 Feet

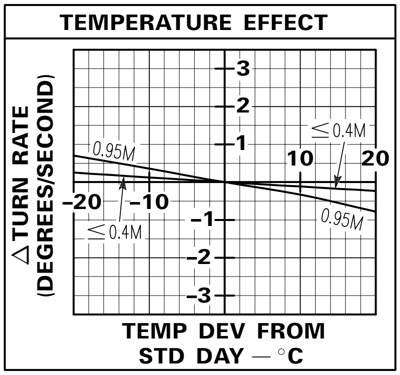
DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

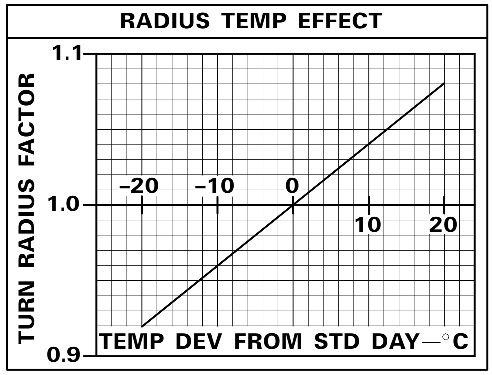
CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







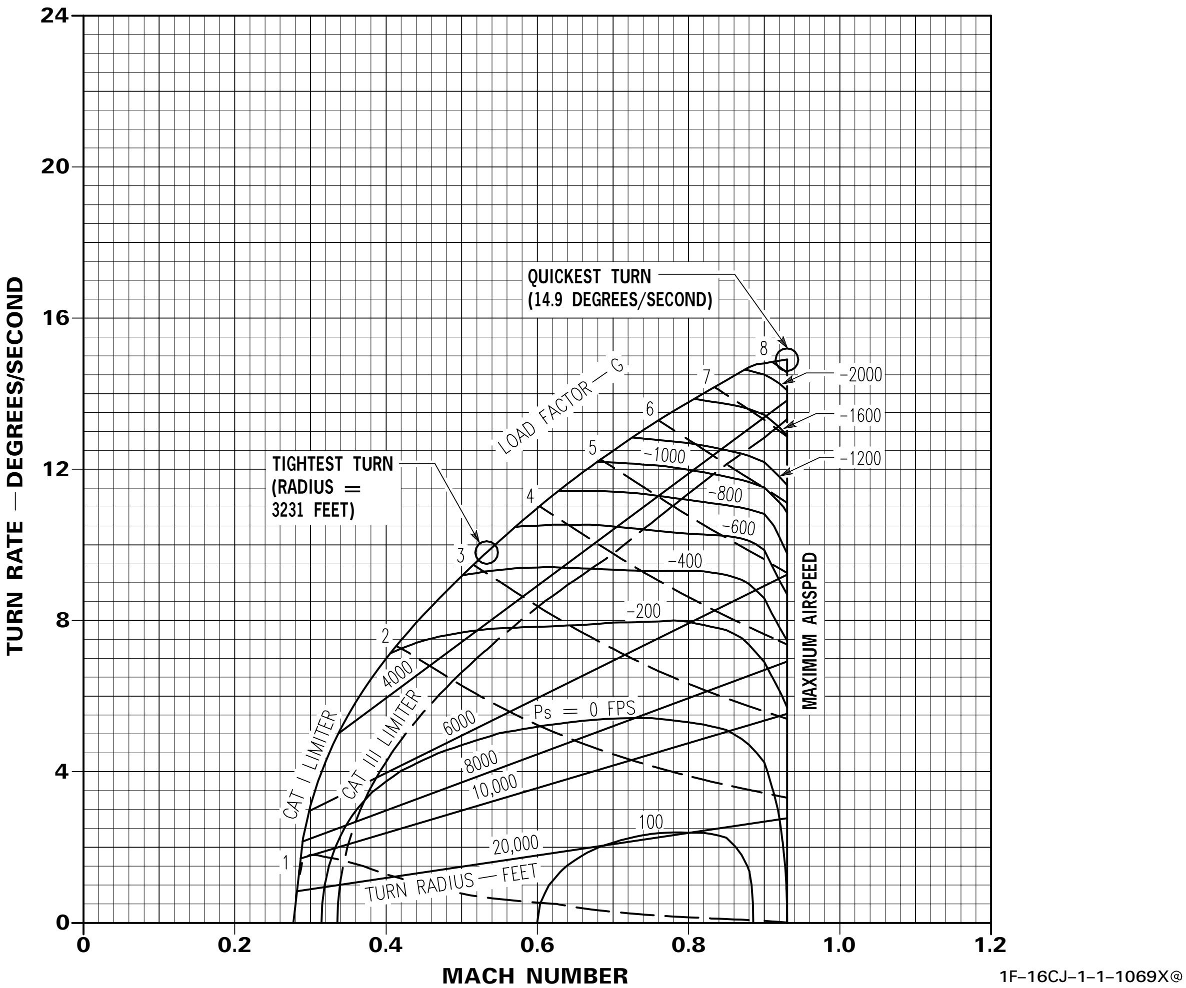


Figure A8-31.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

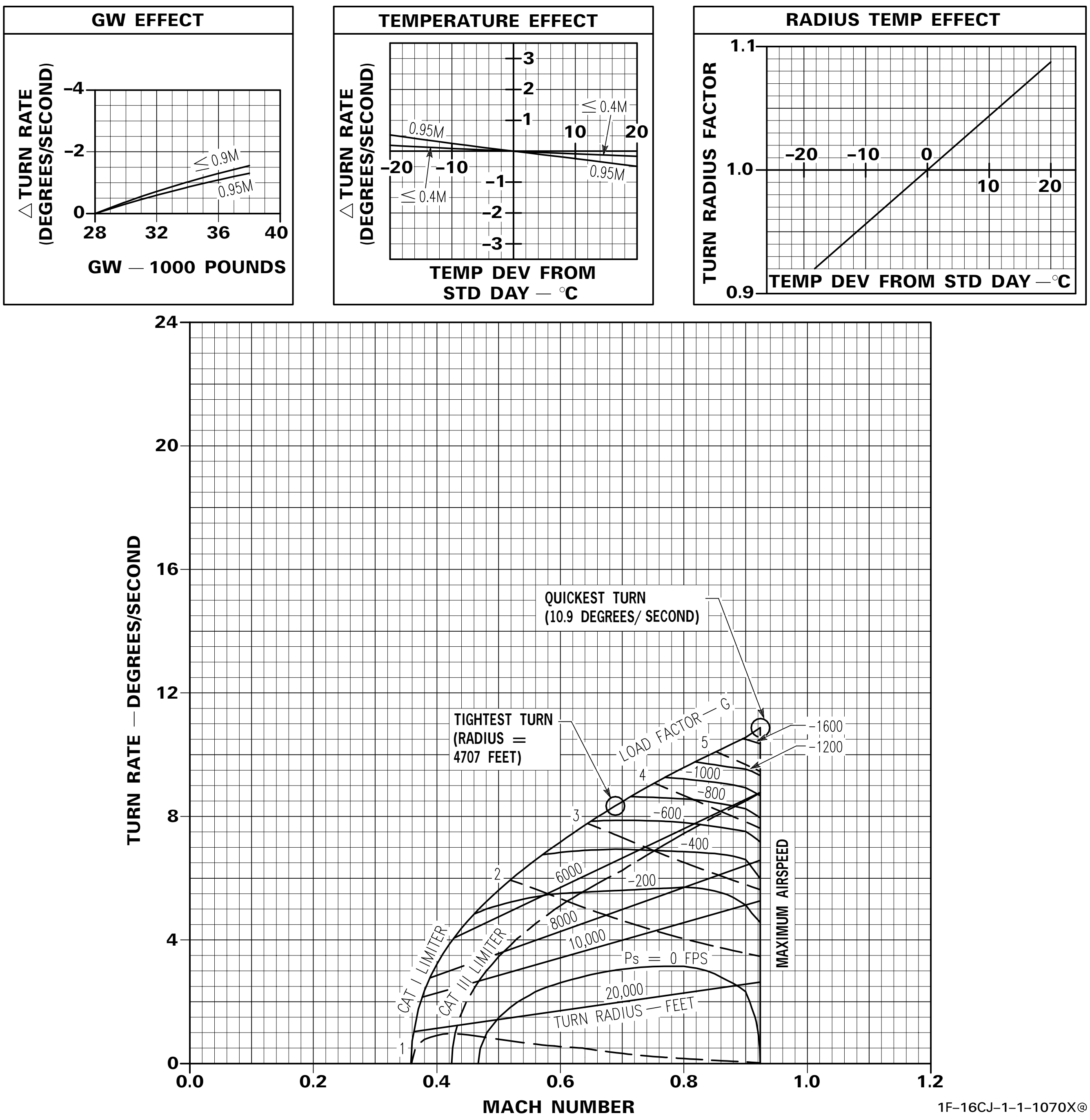


Figure A8-32.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:

- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

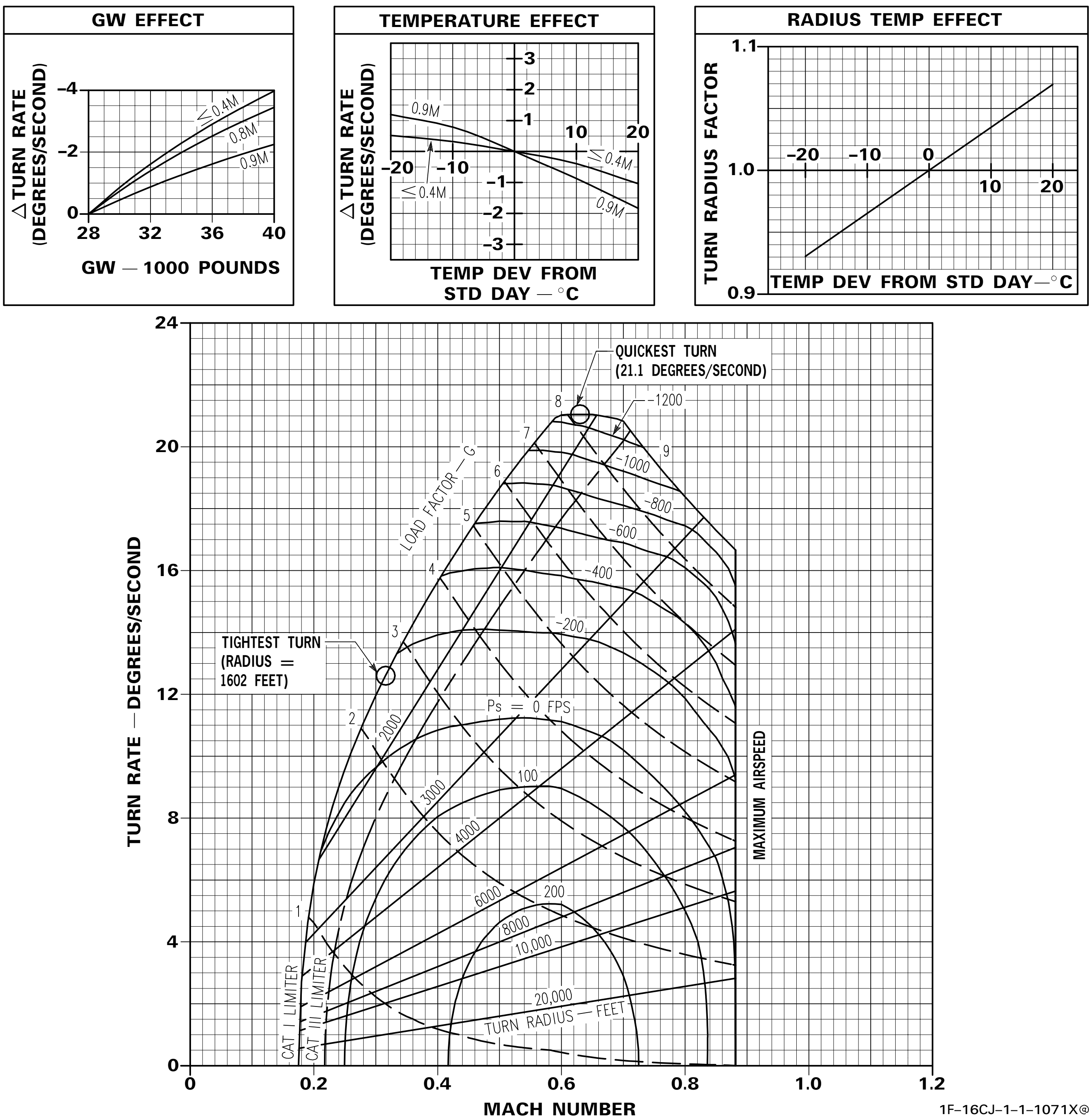


Figure A8-33.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

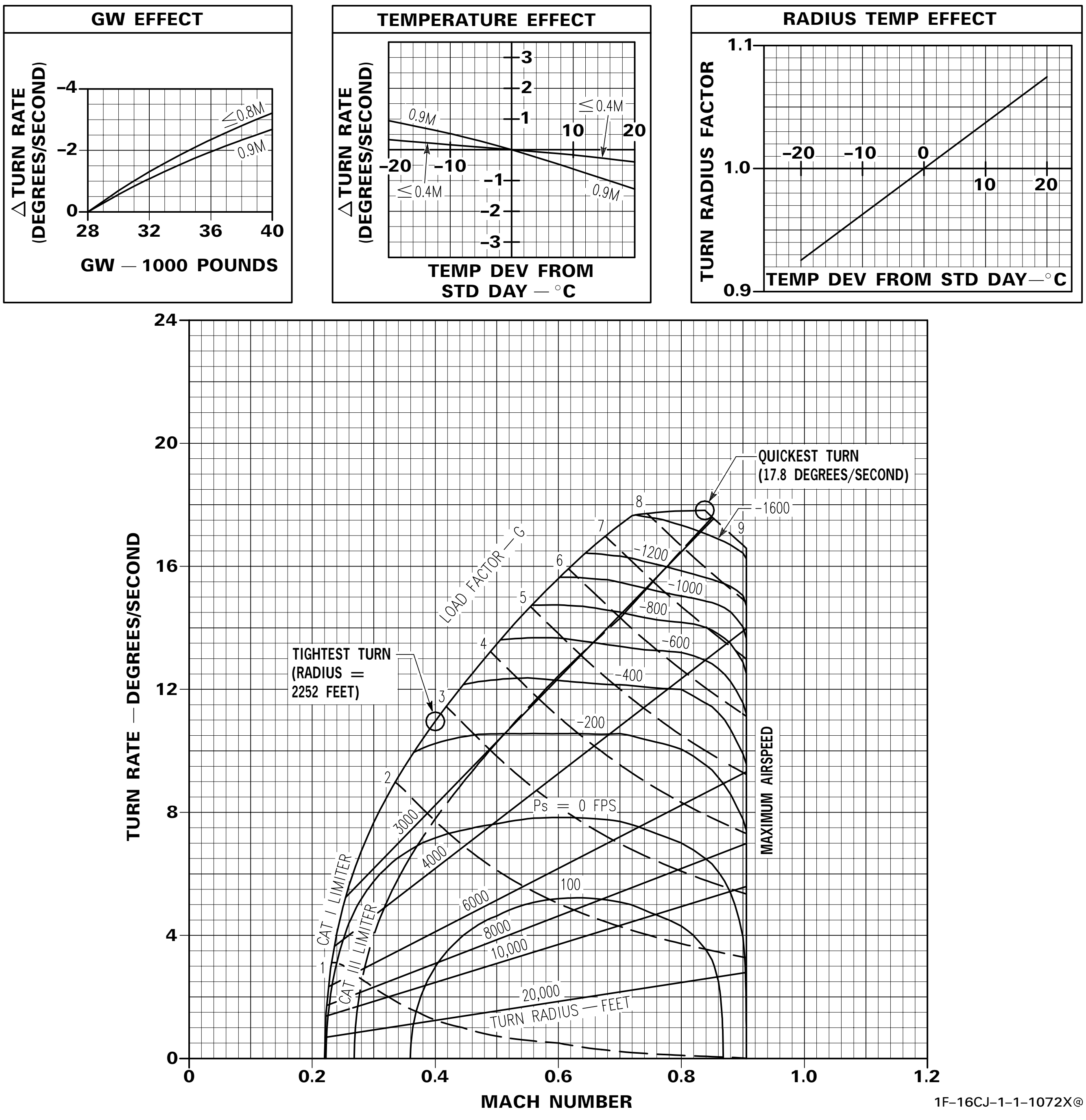


Figure A8-34.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

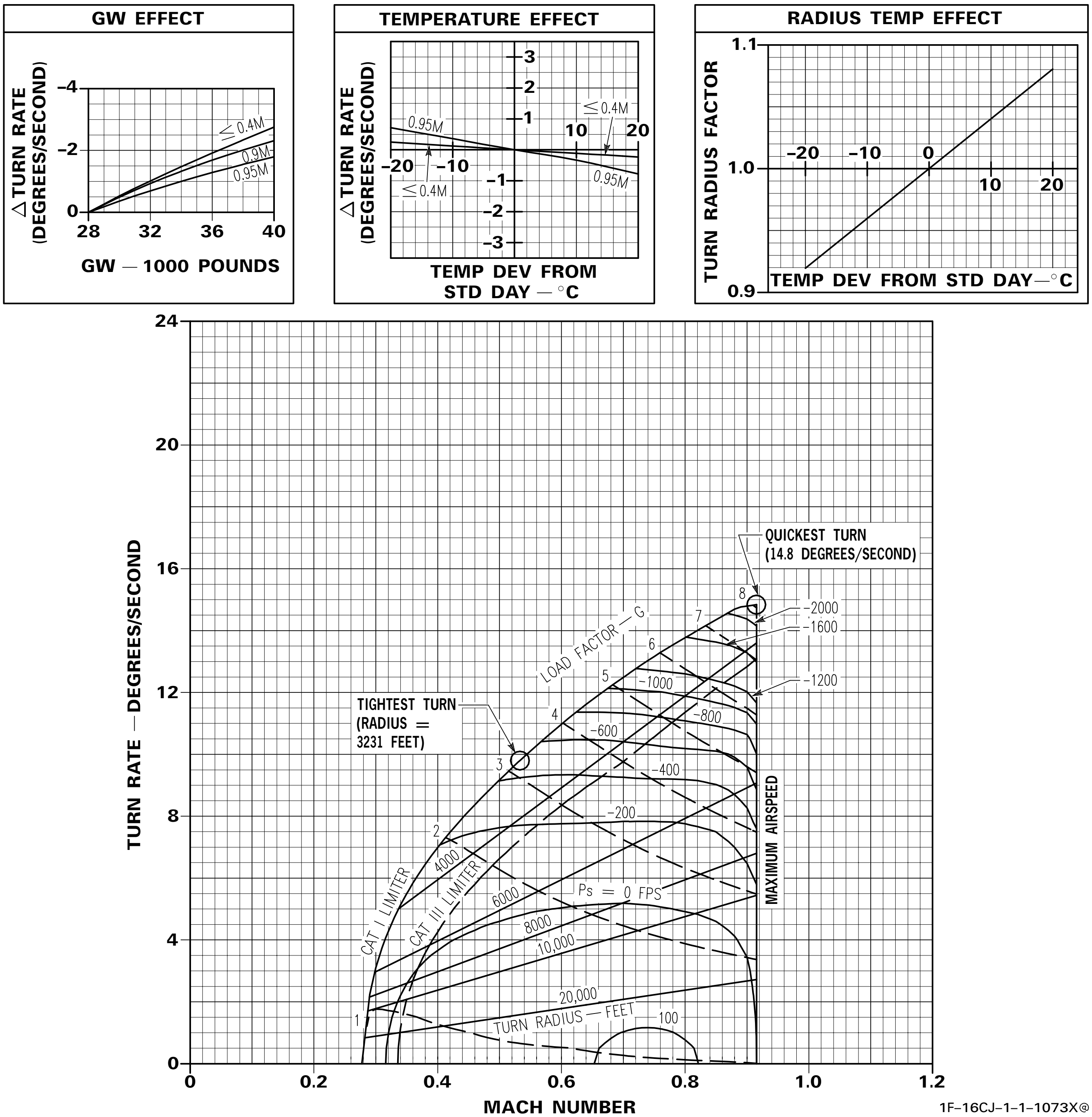


Figure A8-35.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

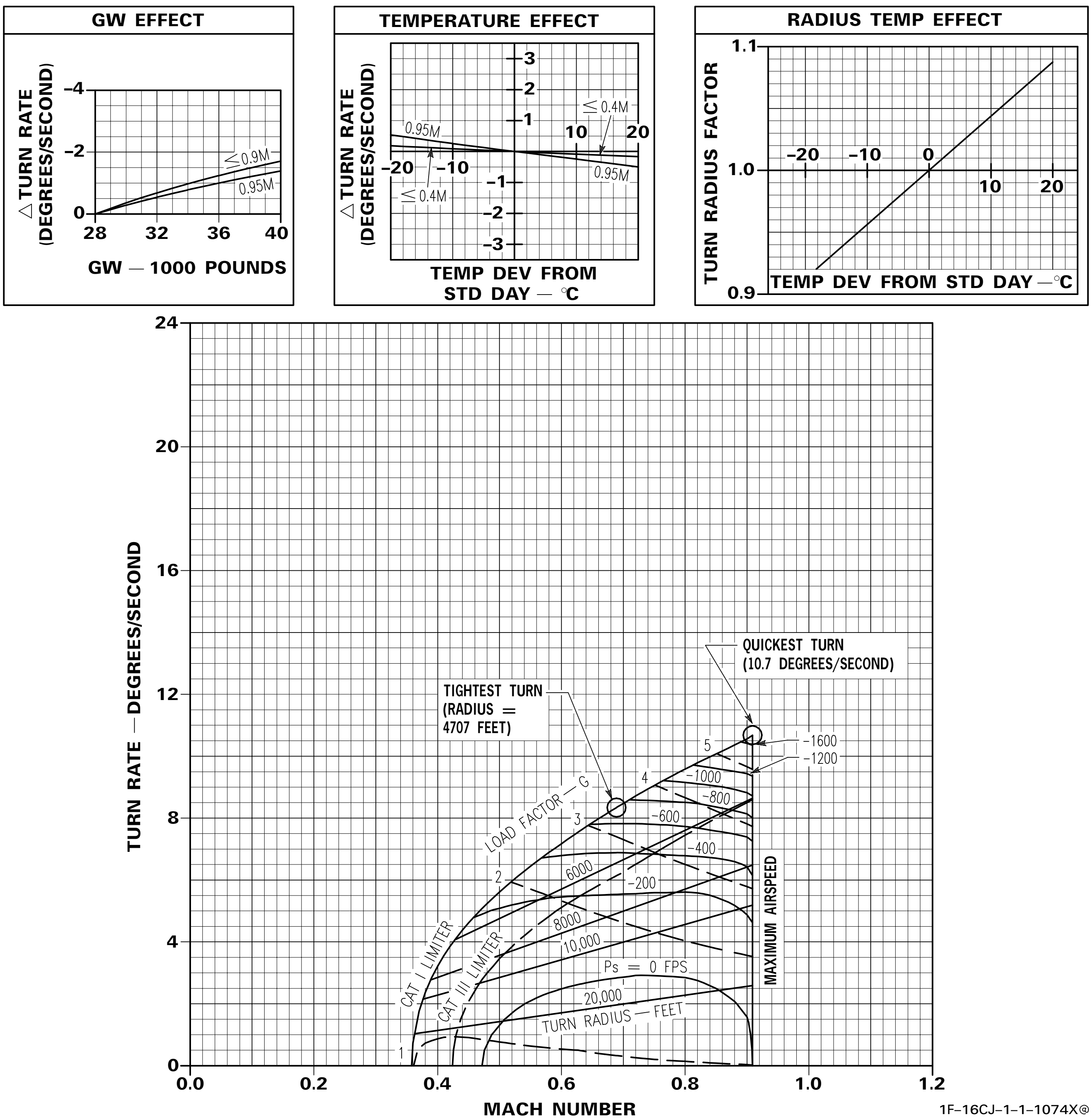


Figure A8-36.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:

- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

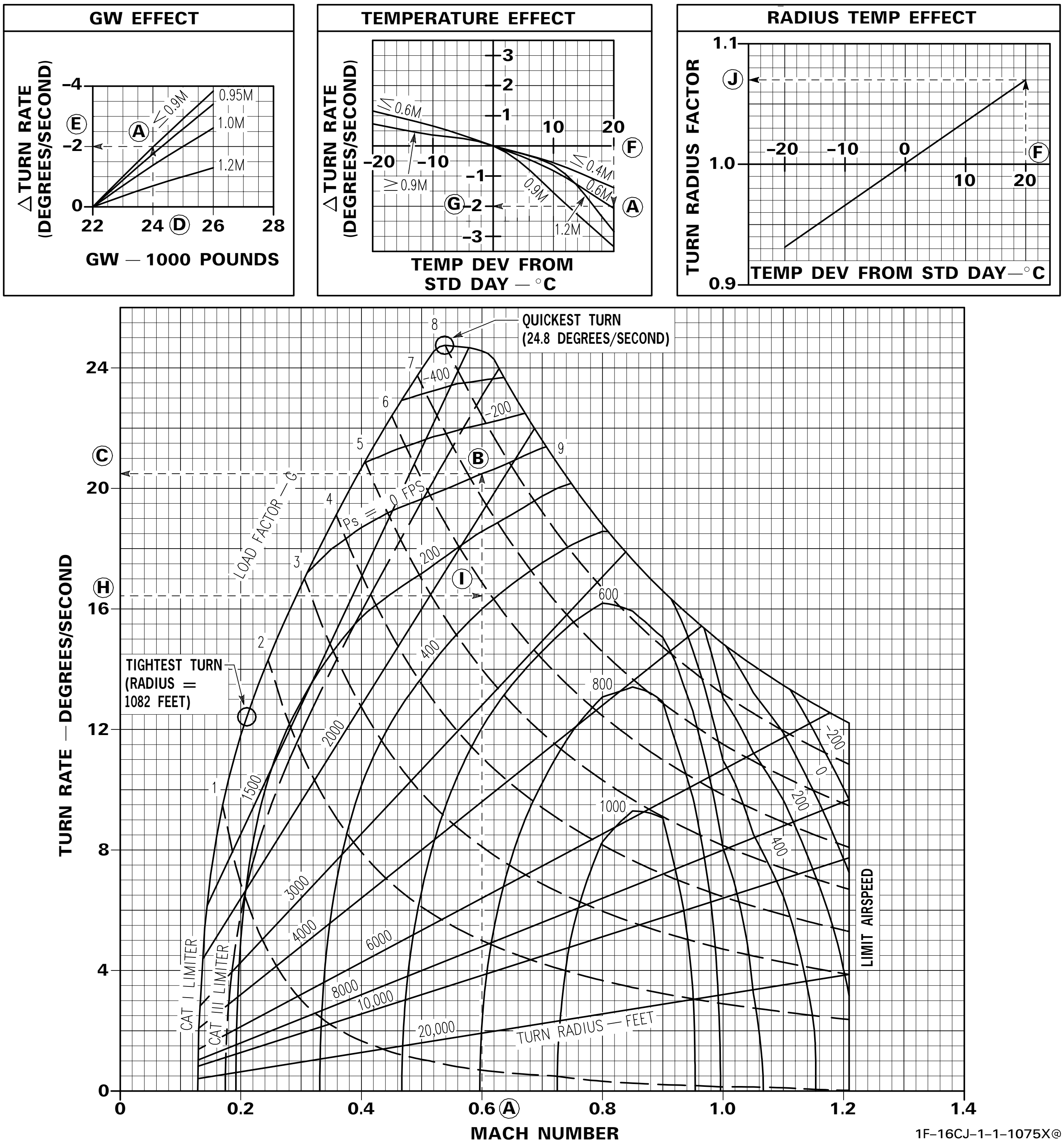


Figure A8-37.

Turn Performance — 5000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- **DRAG INDEX = 0**
- **GW = 22,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

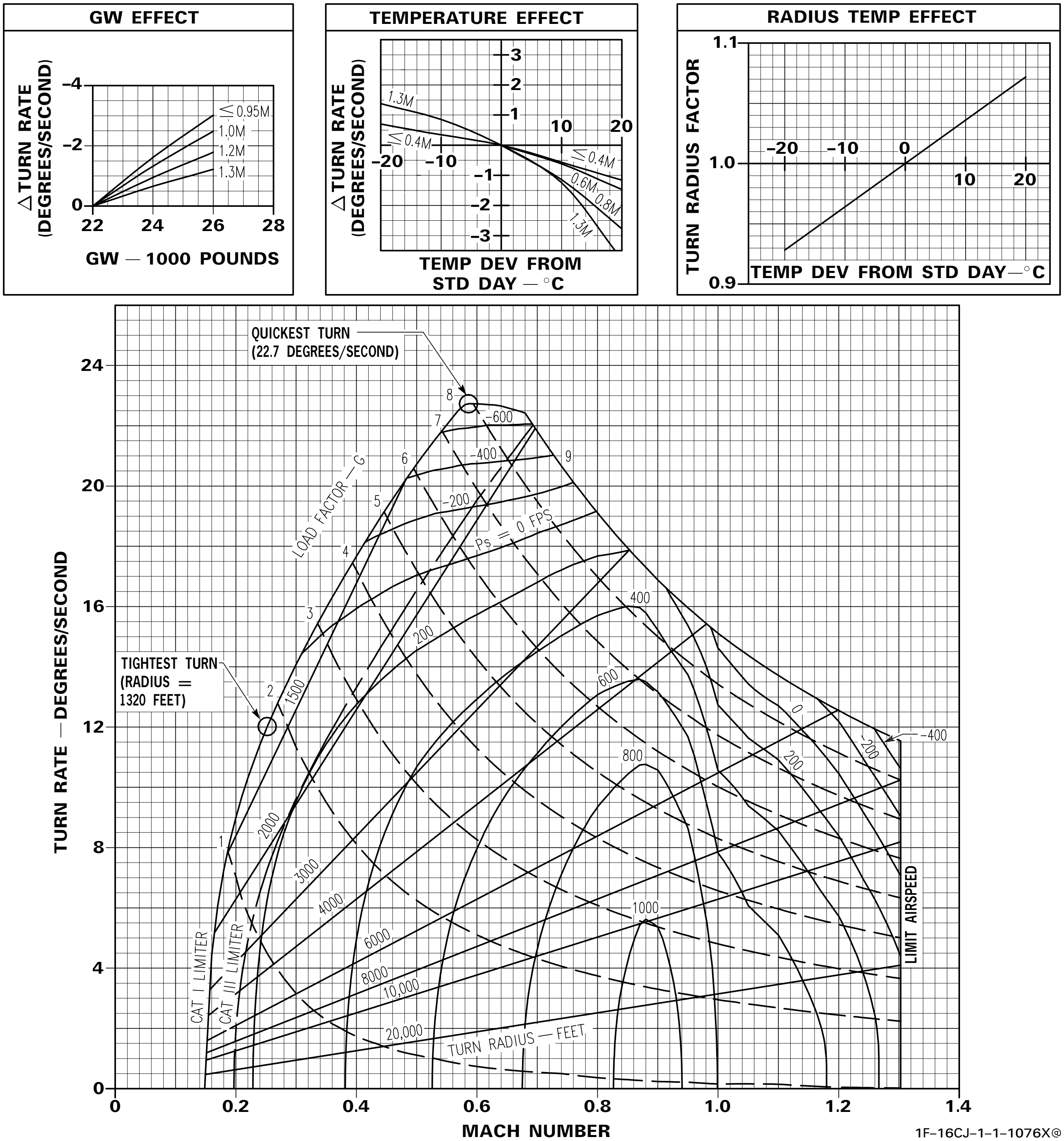


Figure A8-38.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

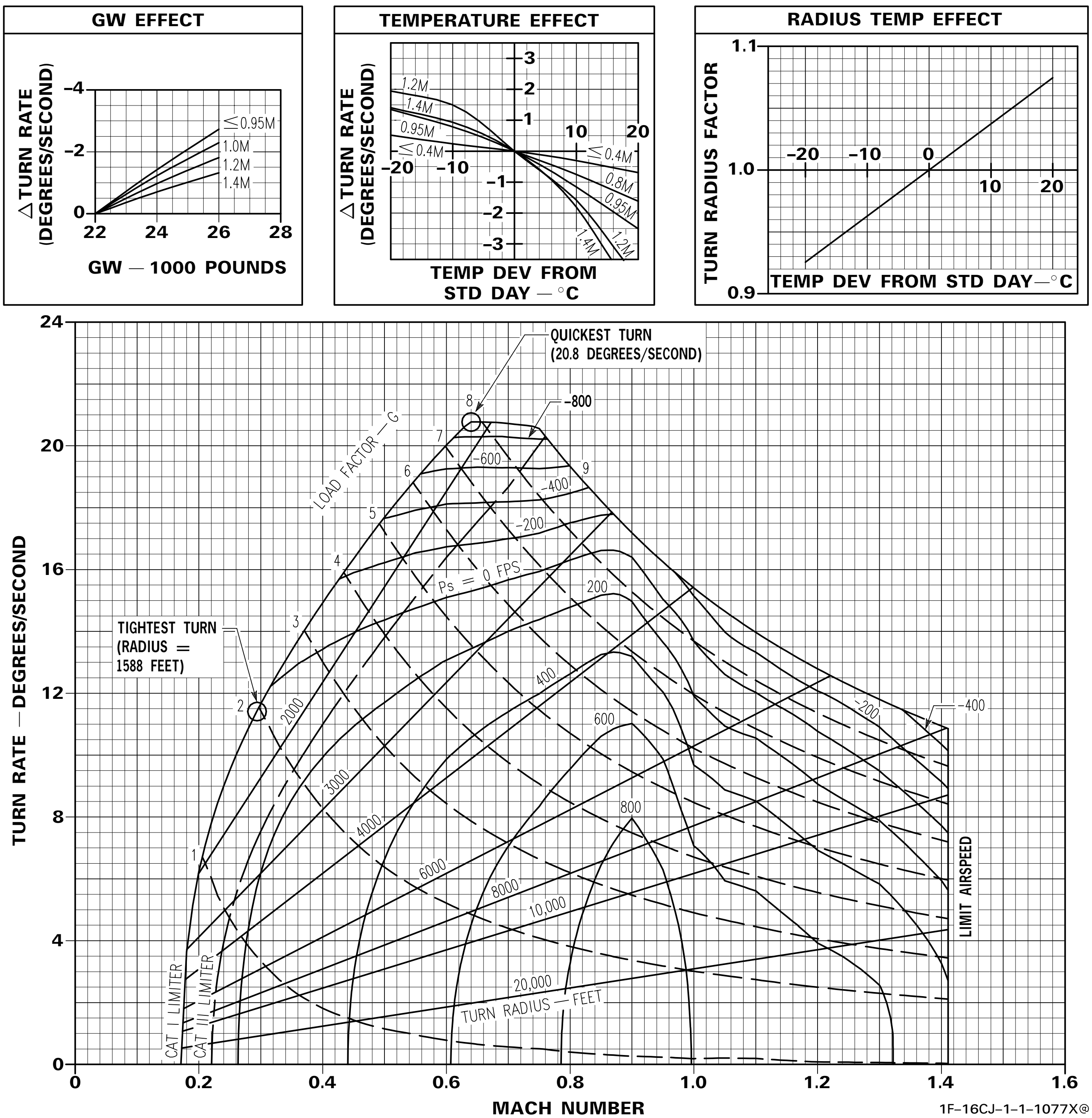


Figure A8-39.

Turn Performance — 15,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

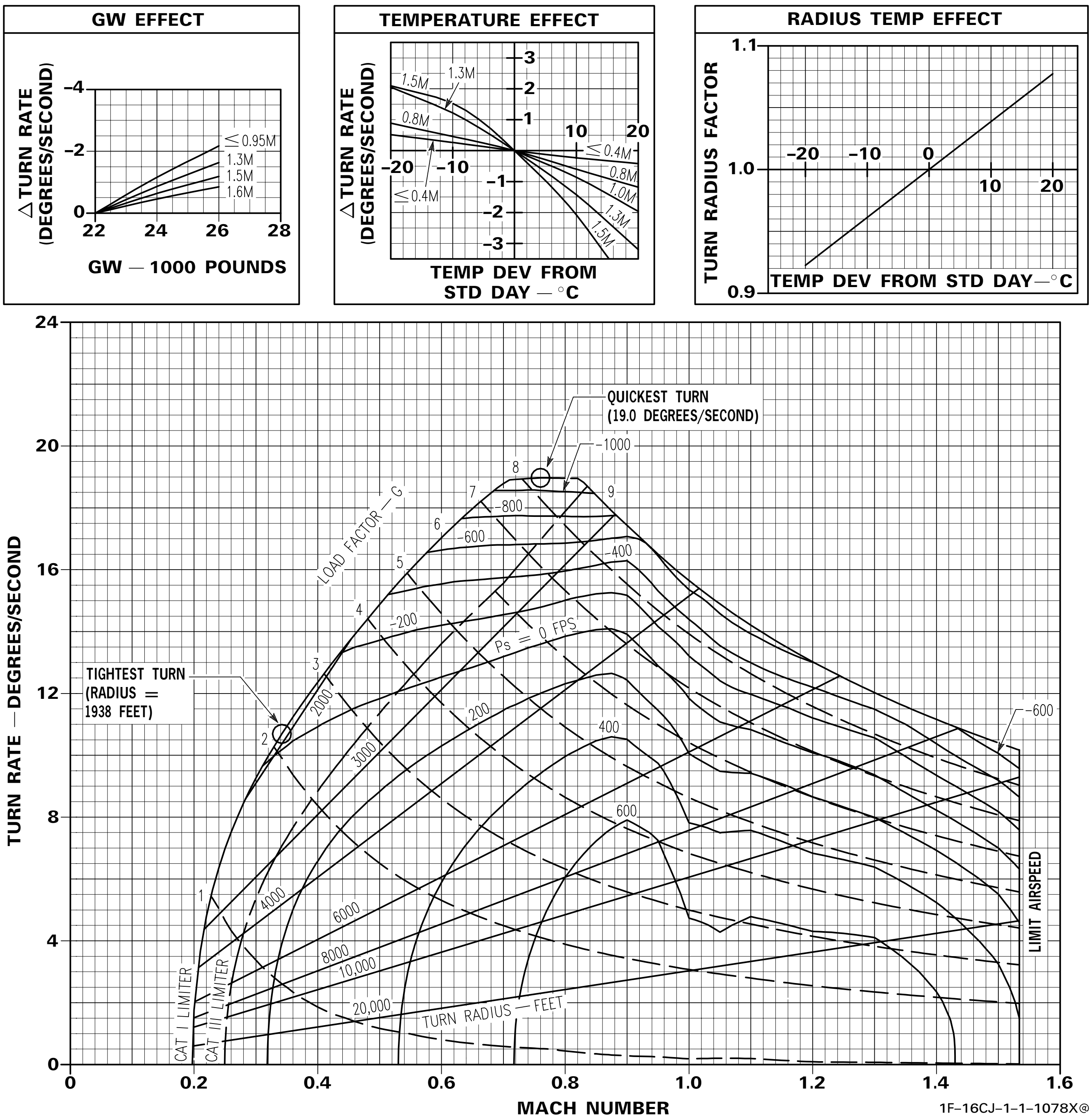


Figure A8-40.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

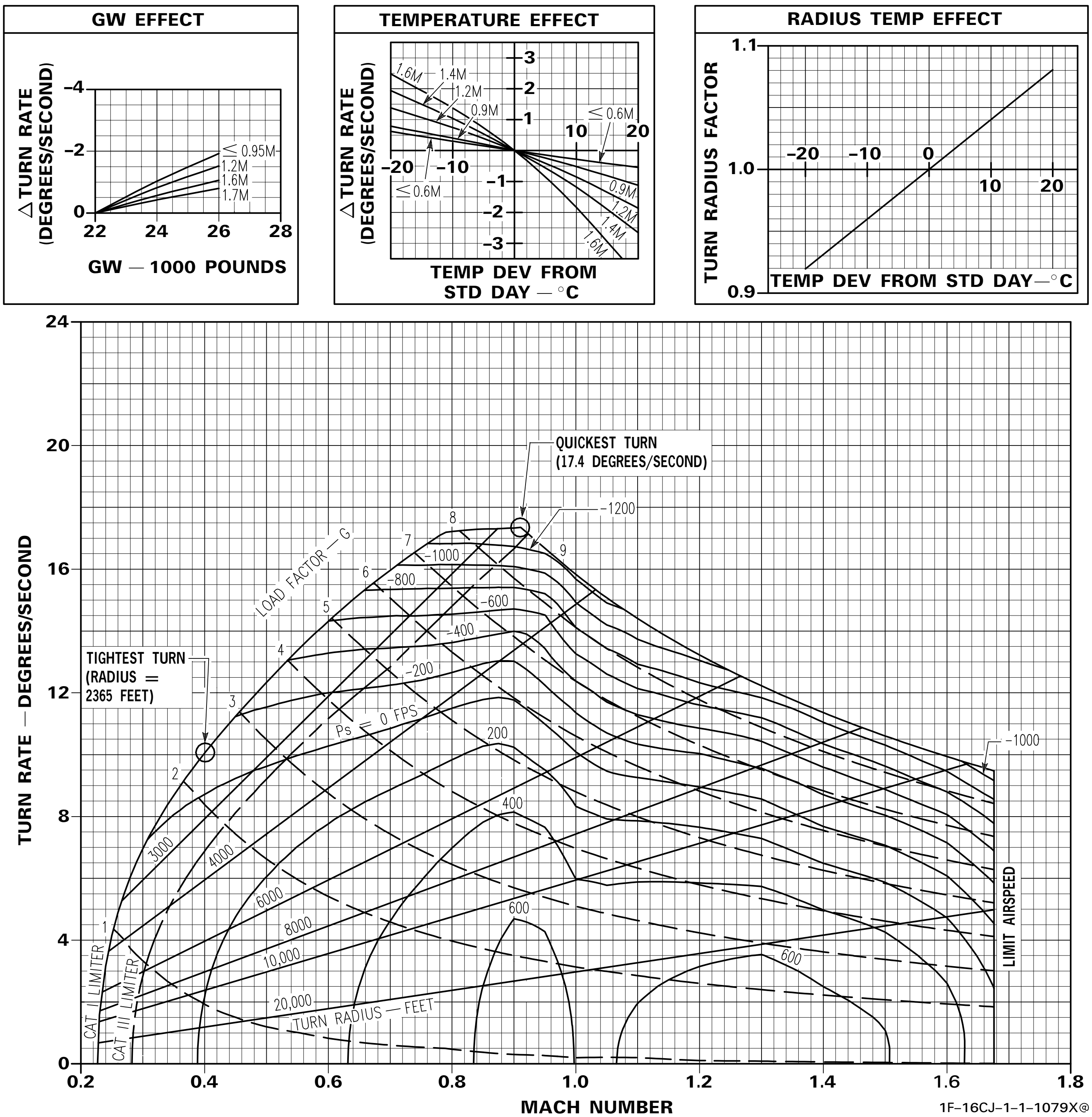


Figure A8-41.

Turn Performance — 25,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

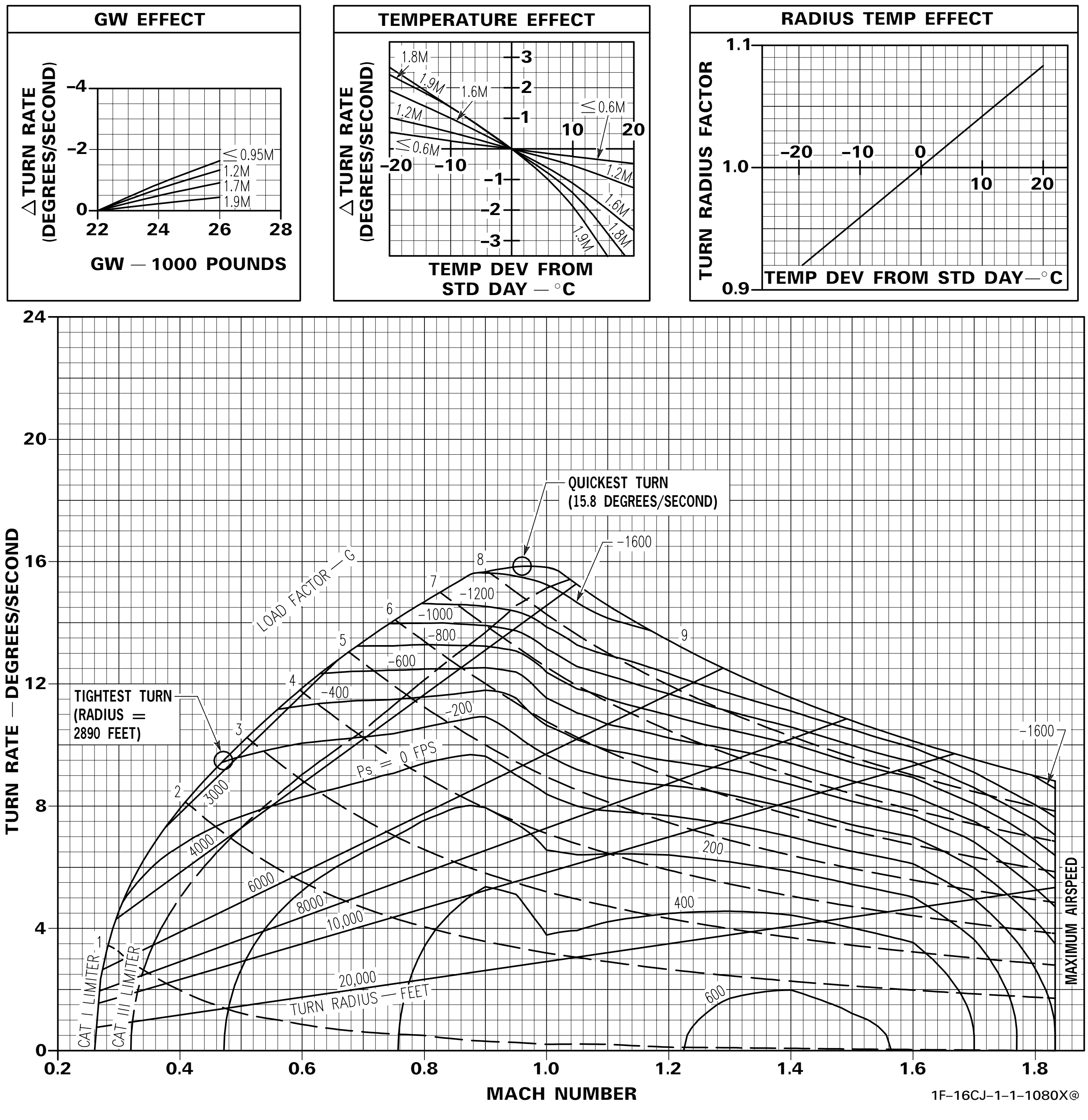


Figure A8-42.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- **DRAG INDEX = 0**
- **GW = 22,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

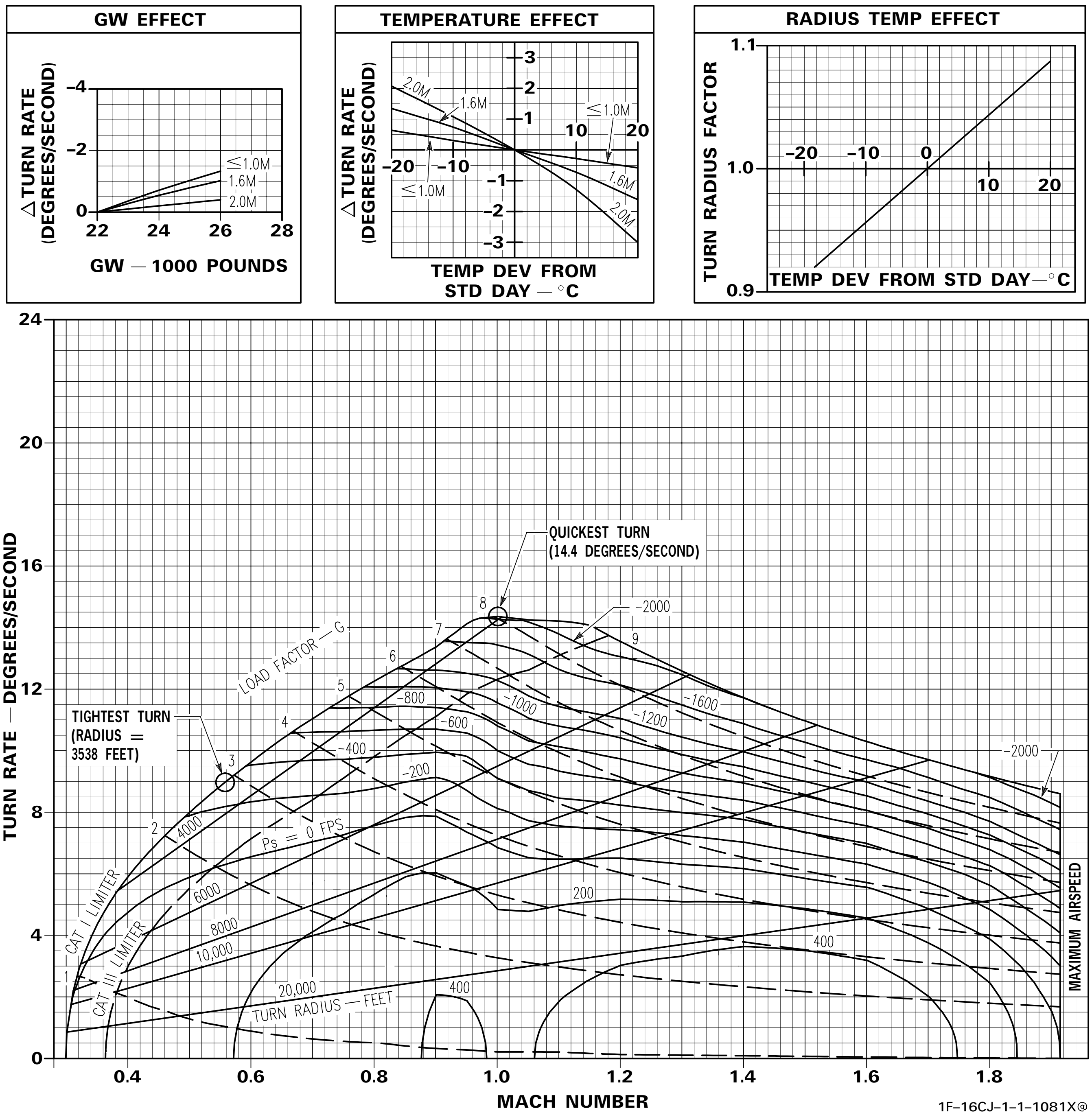


Figure A8-43.

Turn Performance — 35,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- **DRAG INDEX = 0**
- **GW = 22,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

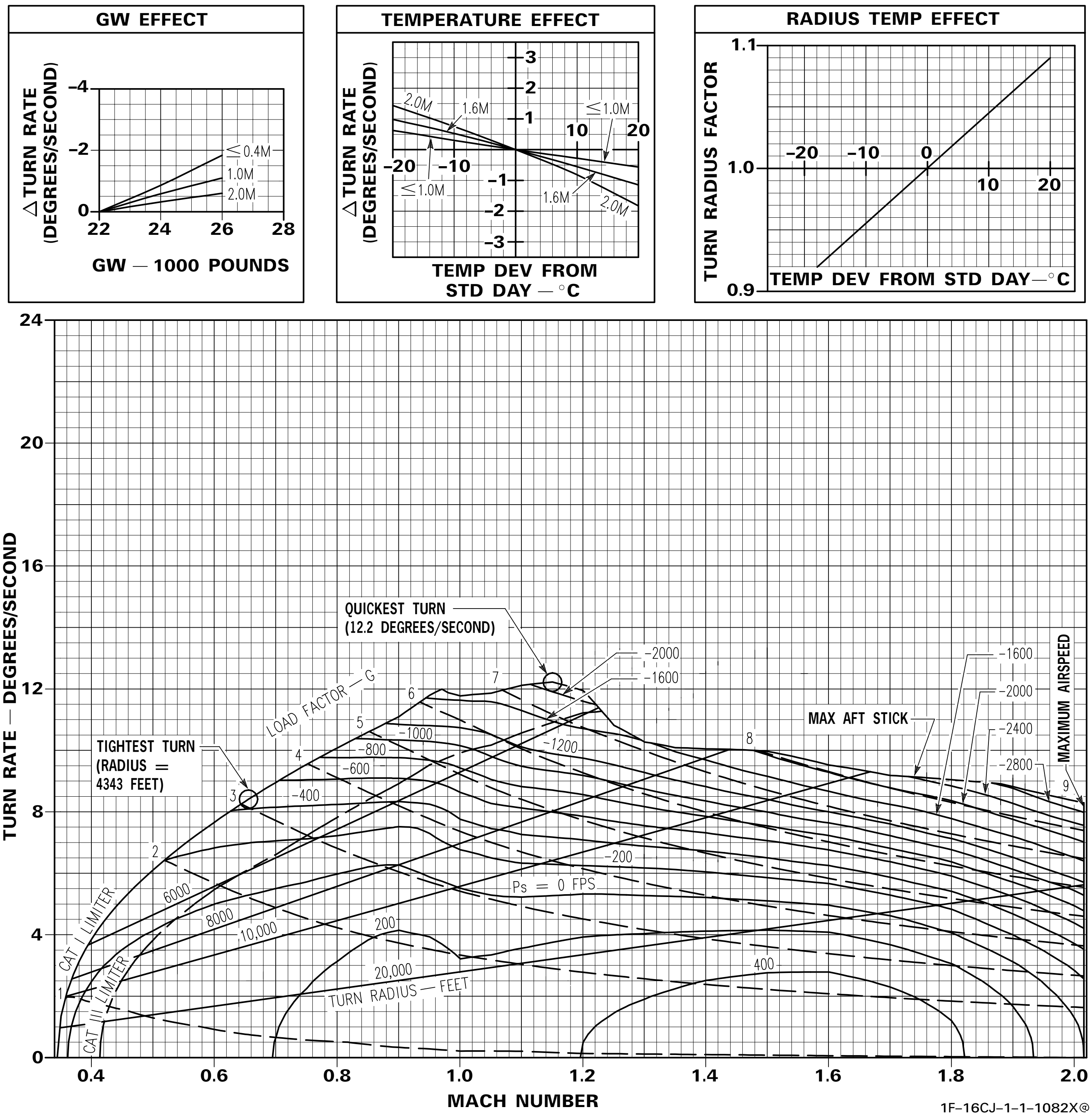


Figure A8-44.

Turn Performance — 40,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

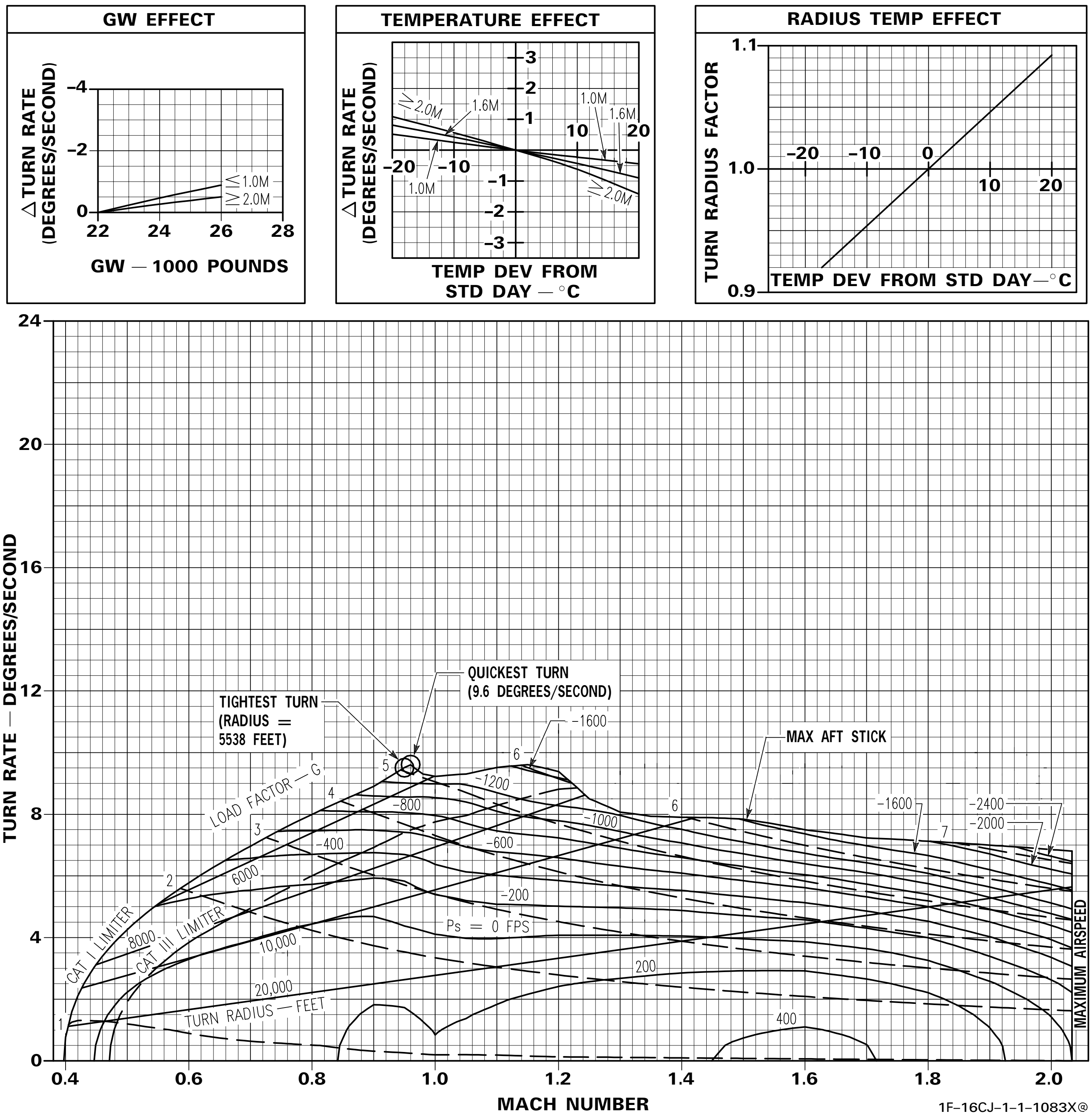


Figure A8-45.

Turn Performance — 45,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

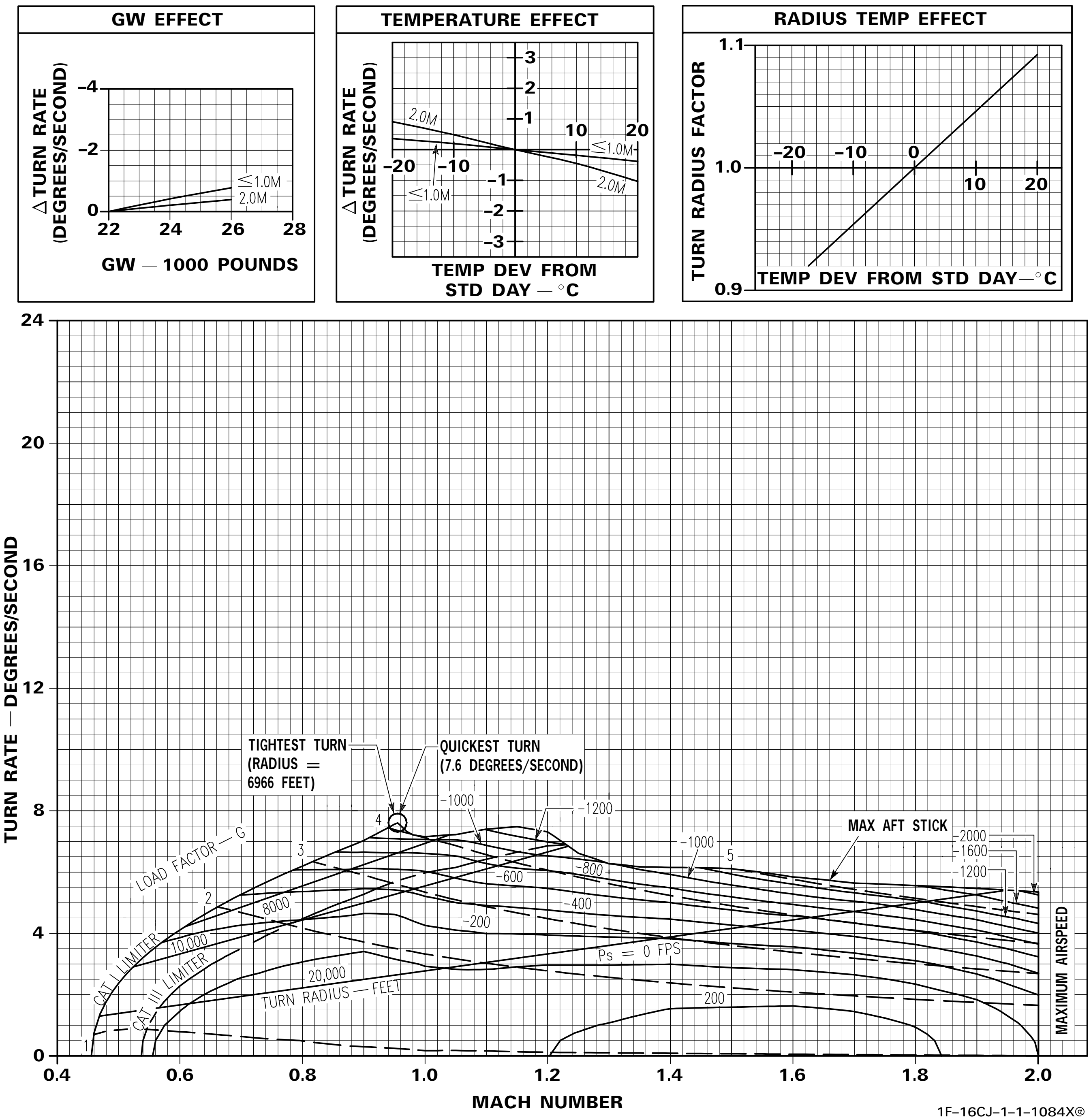


Figure A8-46.

Turn Performance — 50,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

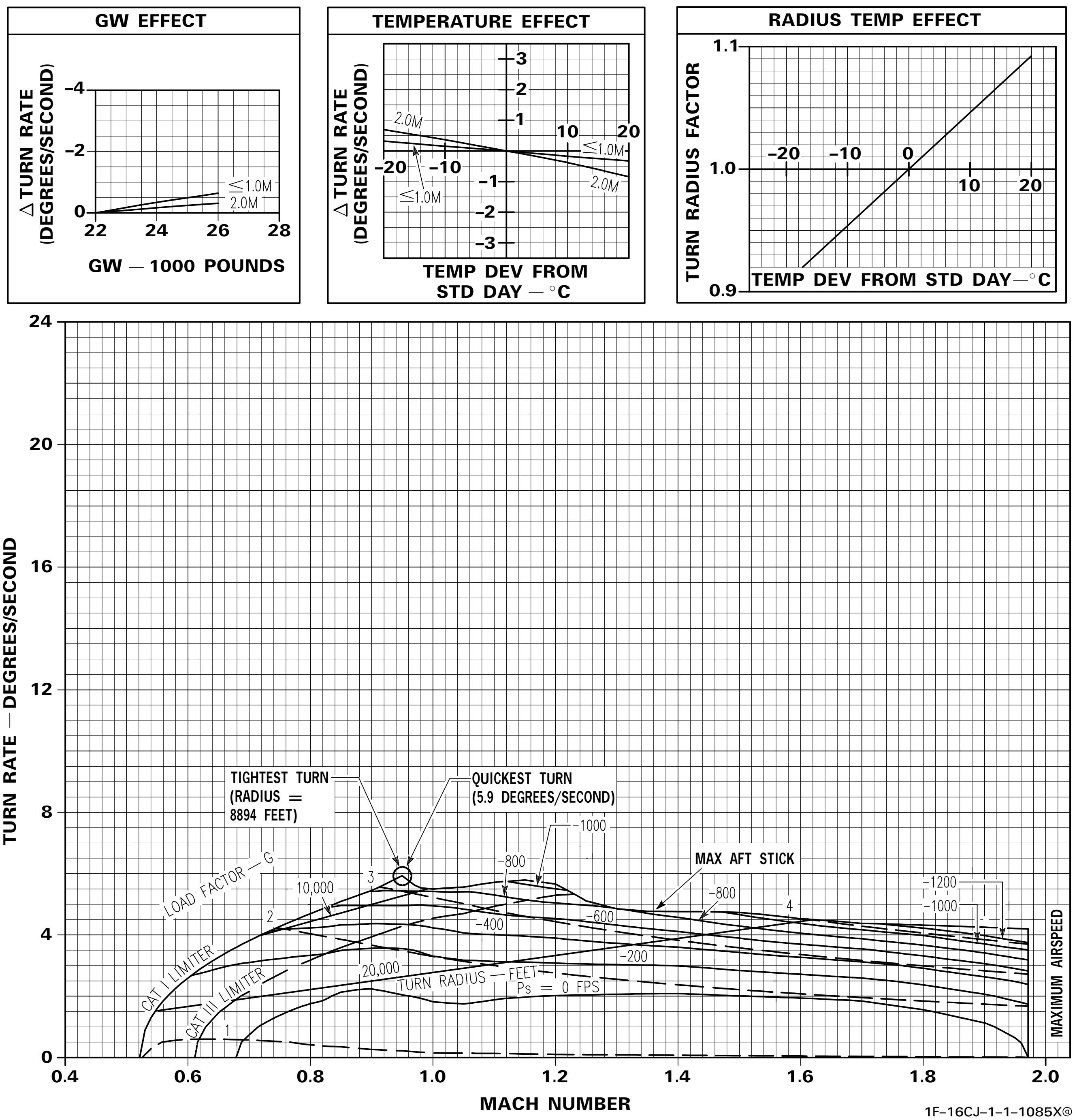


Figure A8-47.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST

ENGINE F100–PW–229

CONFIGURATION:

- **DRAG INDEX = 50**
- **GW = 26,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

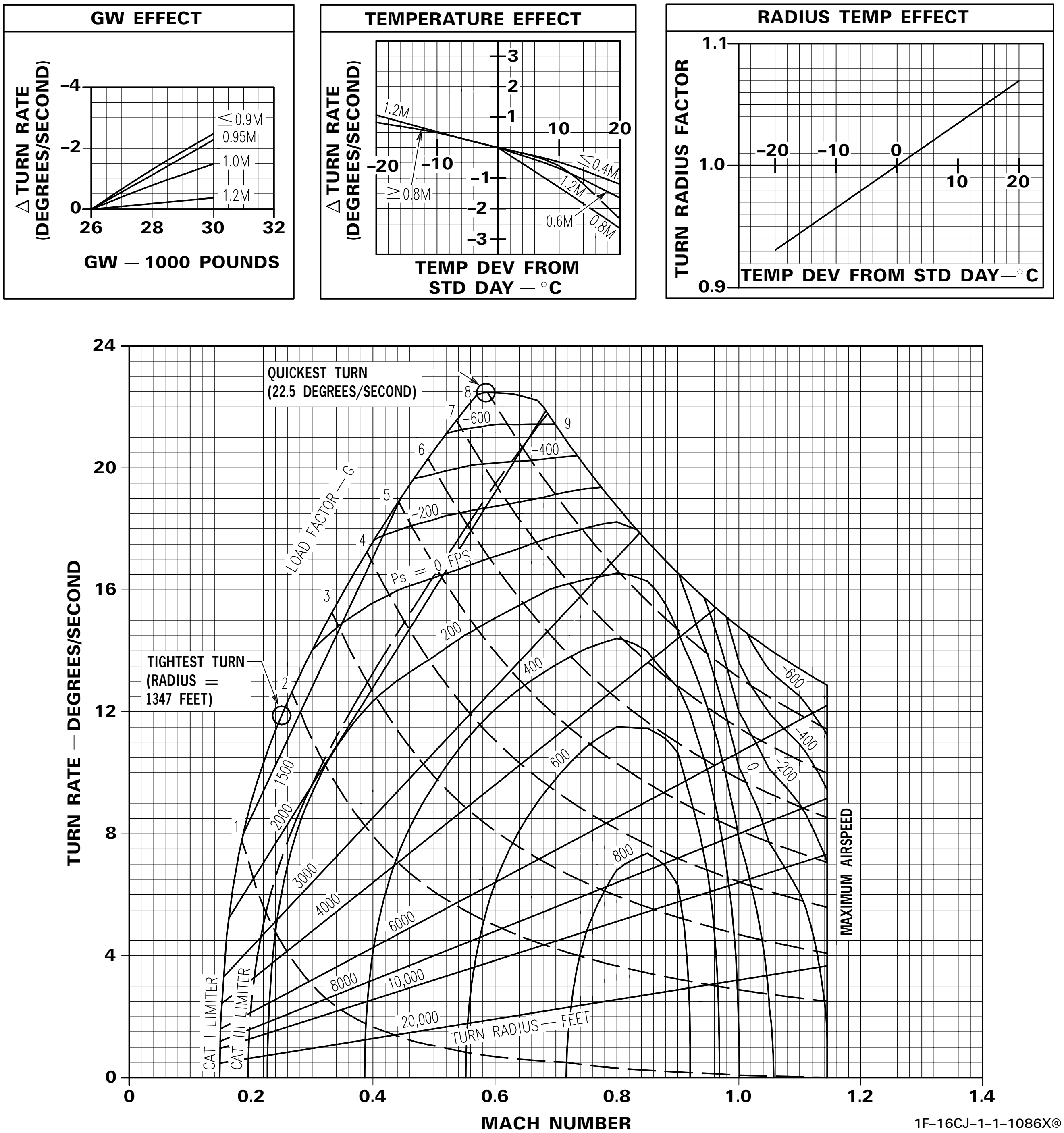


Figure A8-48.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

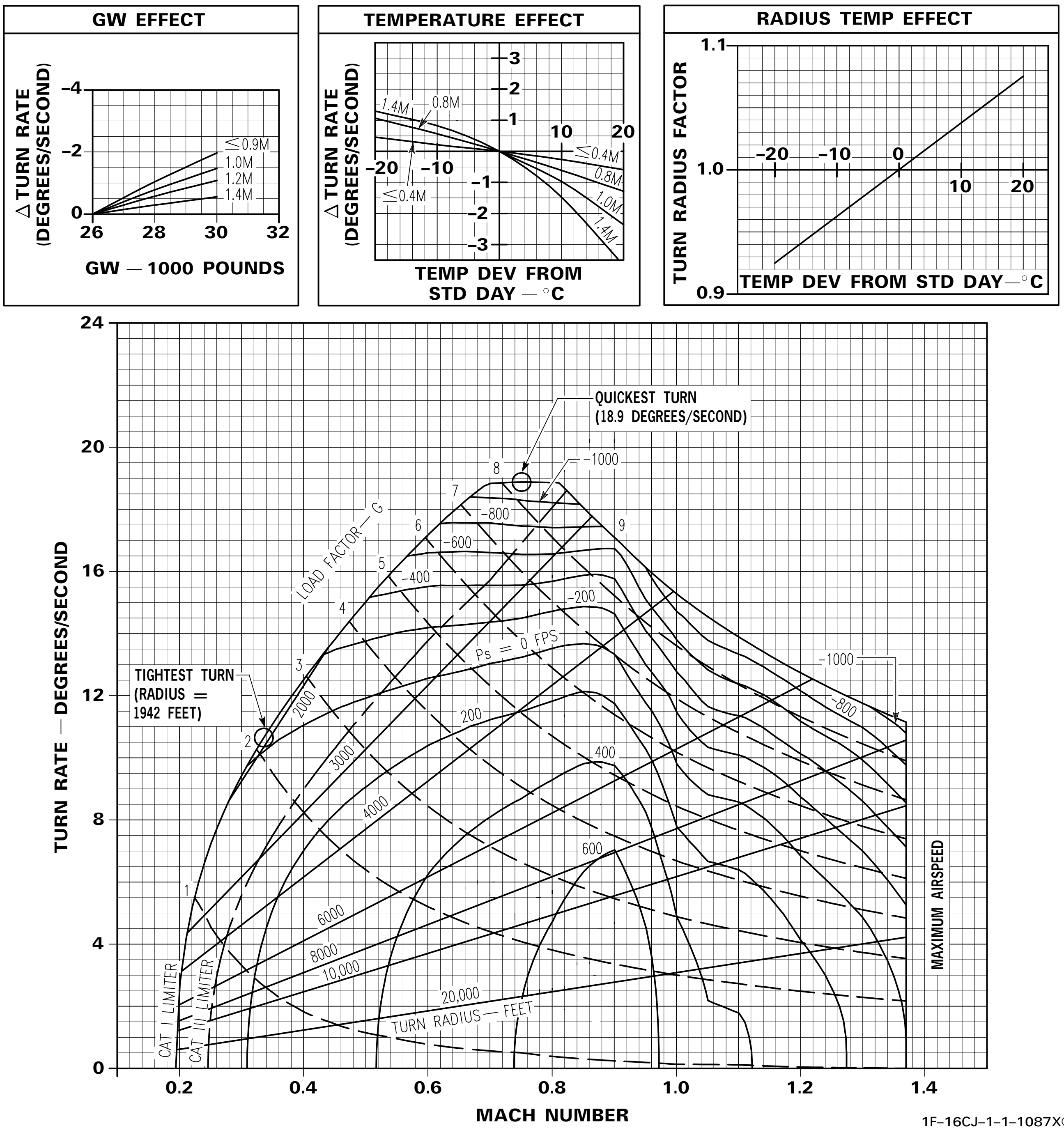


Figure A8-49.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

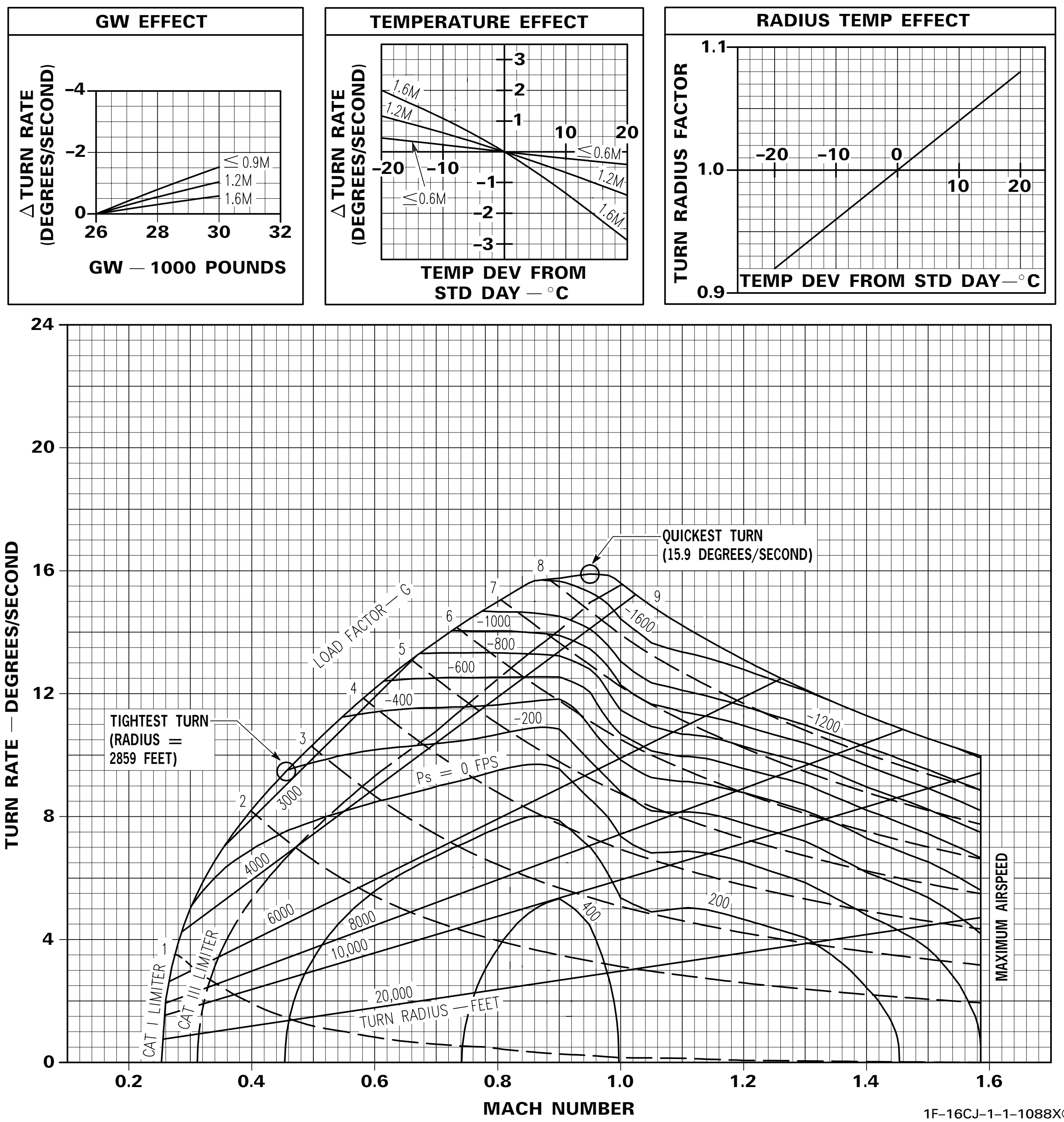


Figure A8-50.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

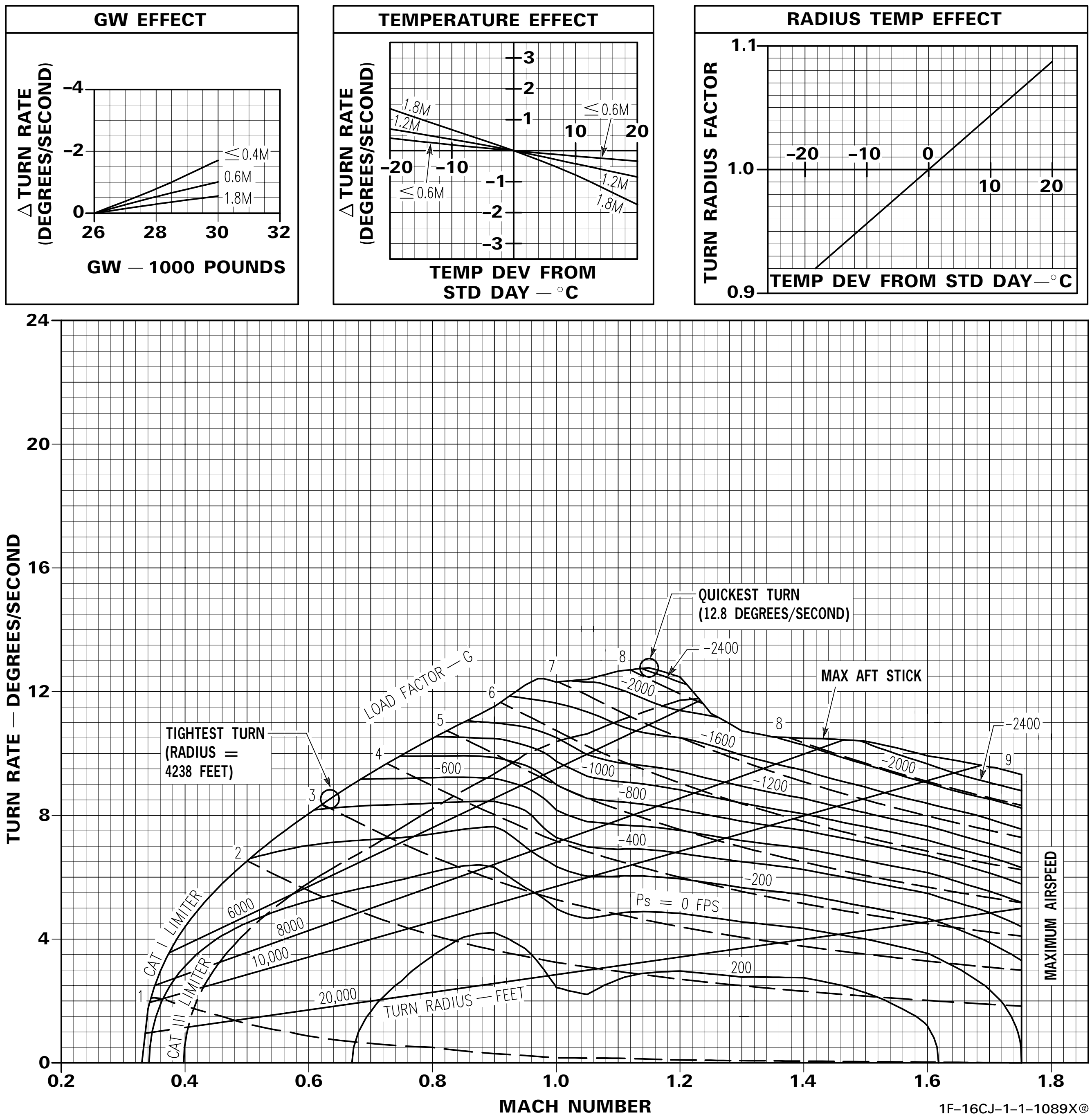


Figure A8-51.

Turn Performance — 40,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

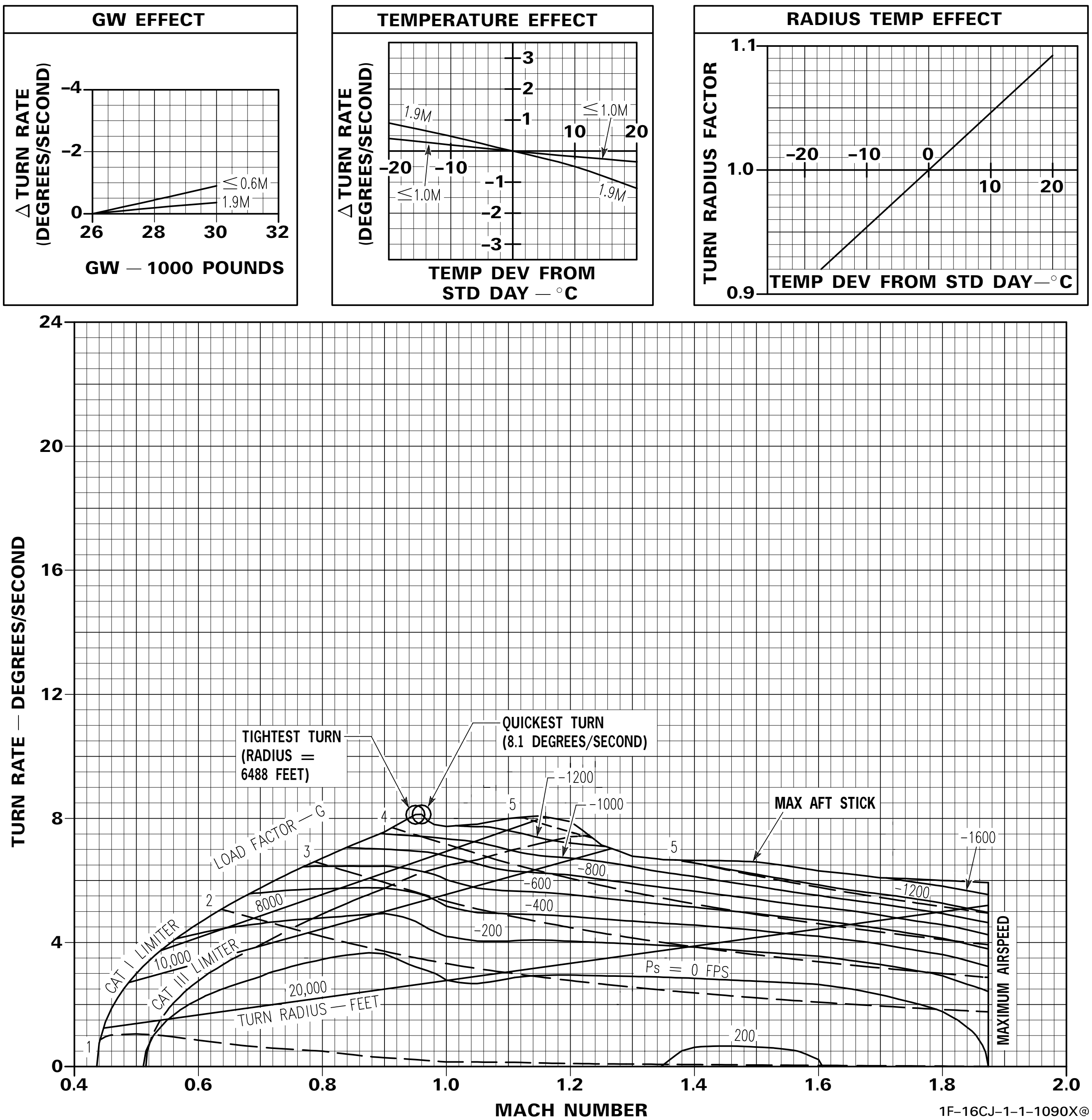


Figure A8-52.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- **DRAG INDEX = 100**
- **GW = 26,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

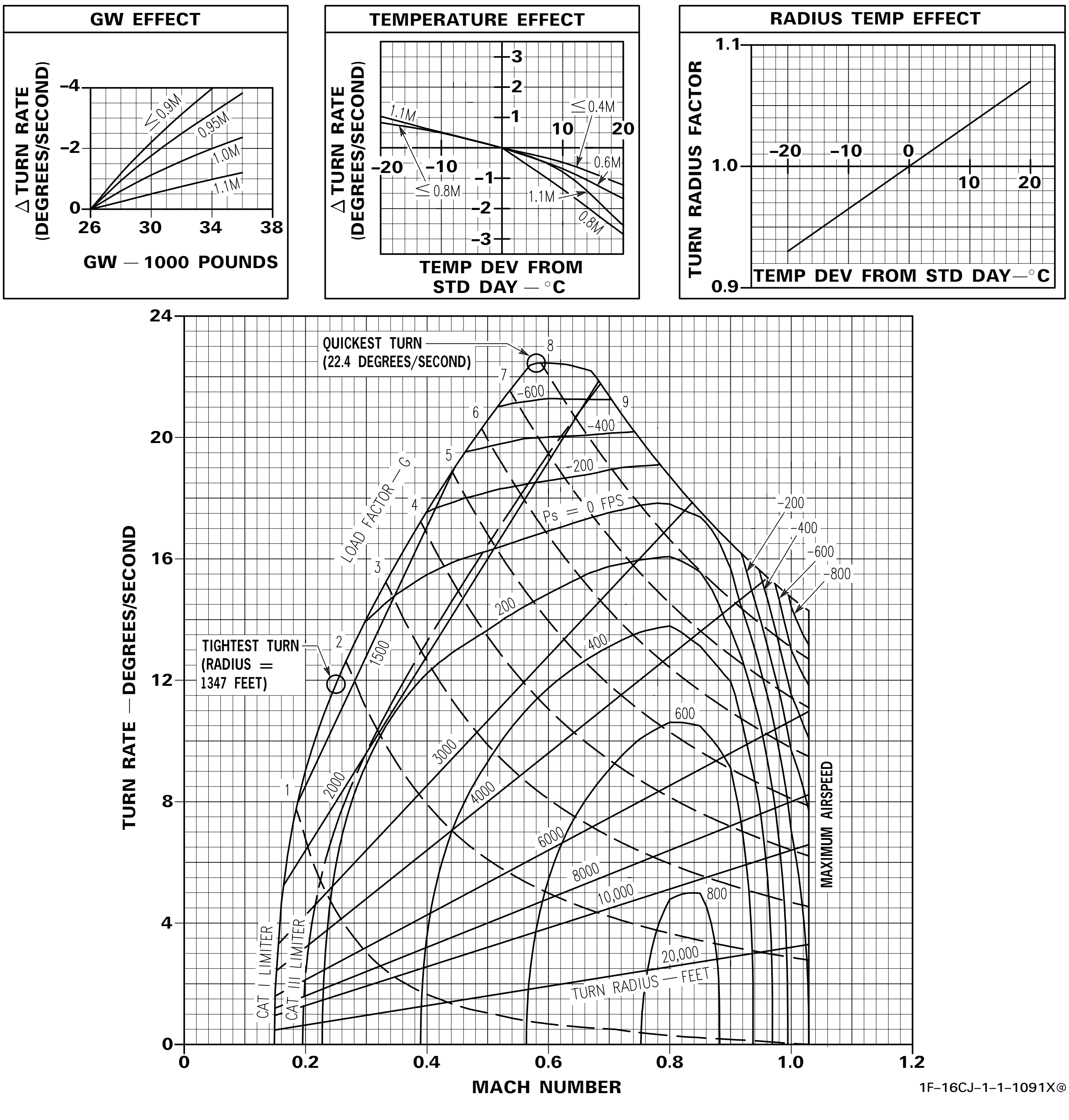


Figure A8-53.

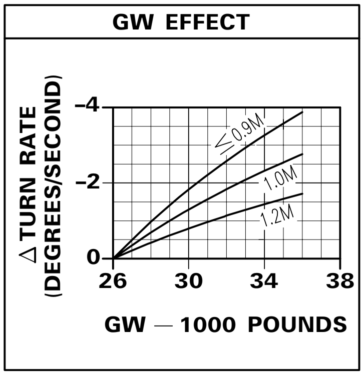
Turn Performance — 10,000 Feet

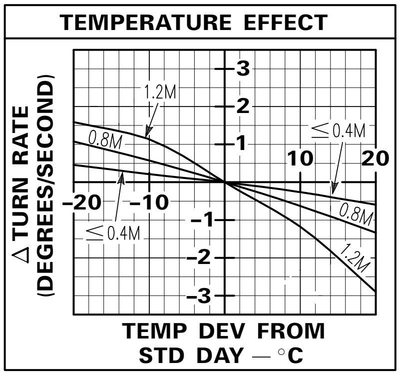
DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

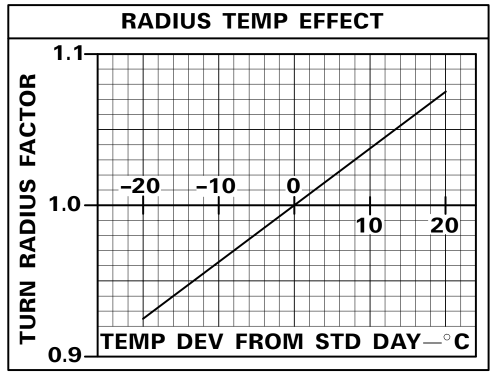
CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







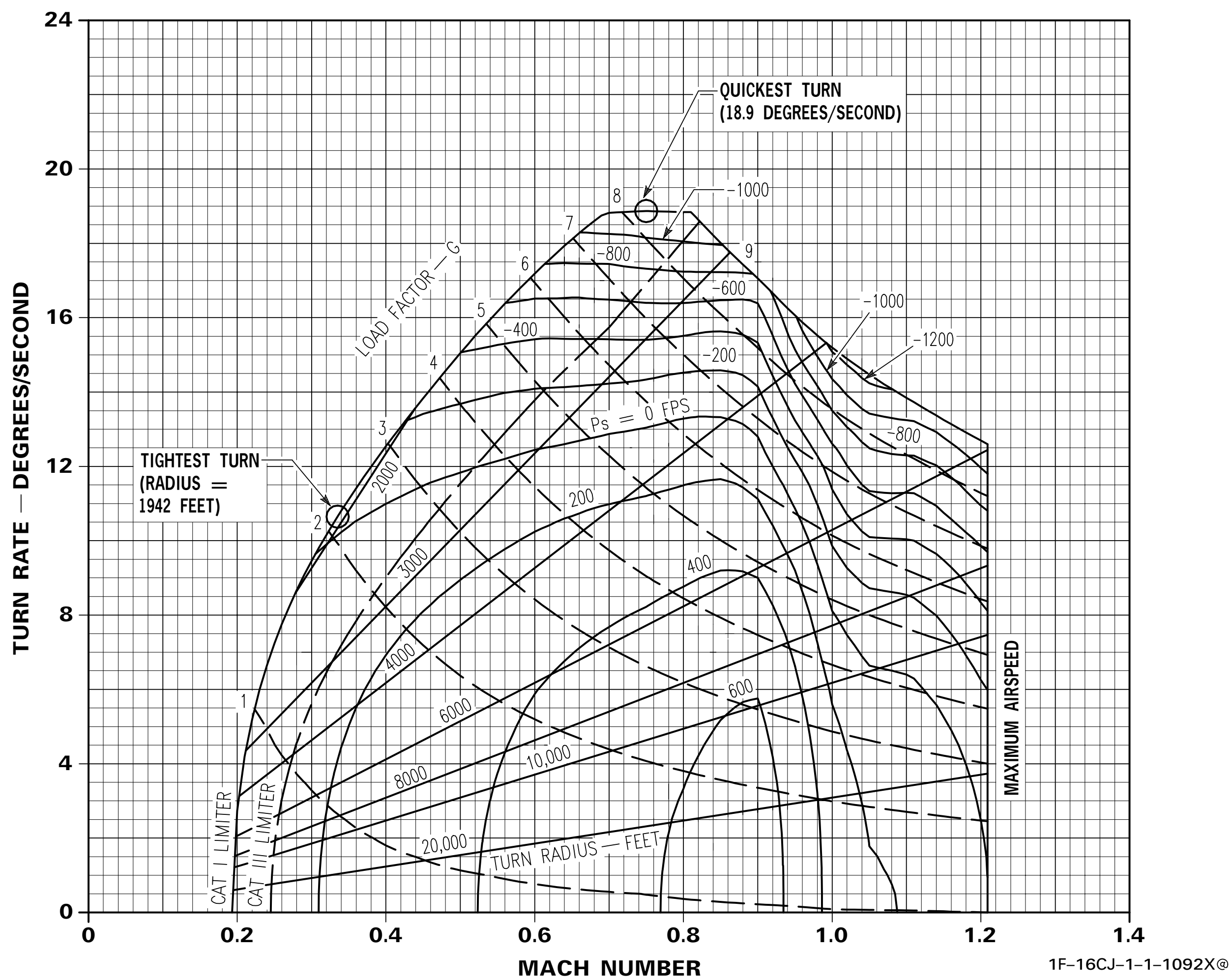


Figure A8-54.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

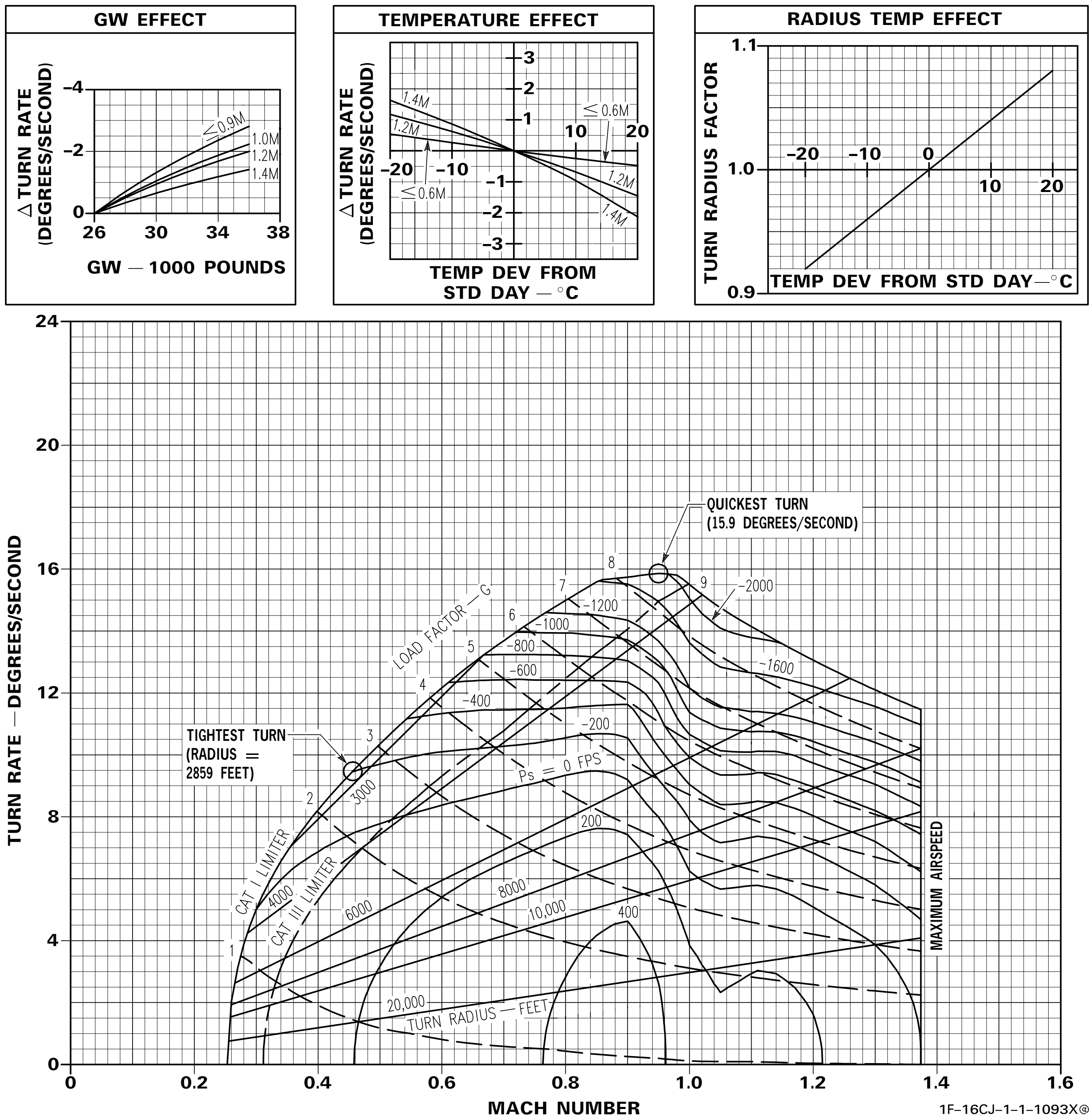


Figure A8-55.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

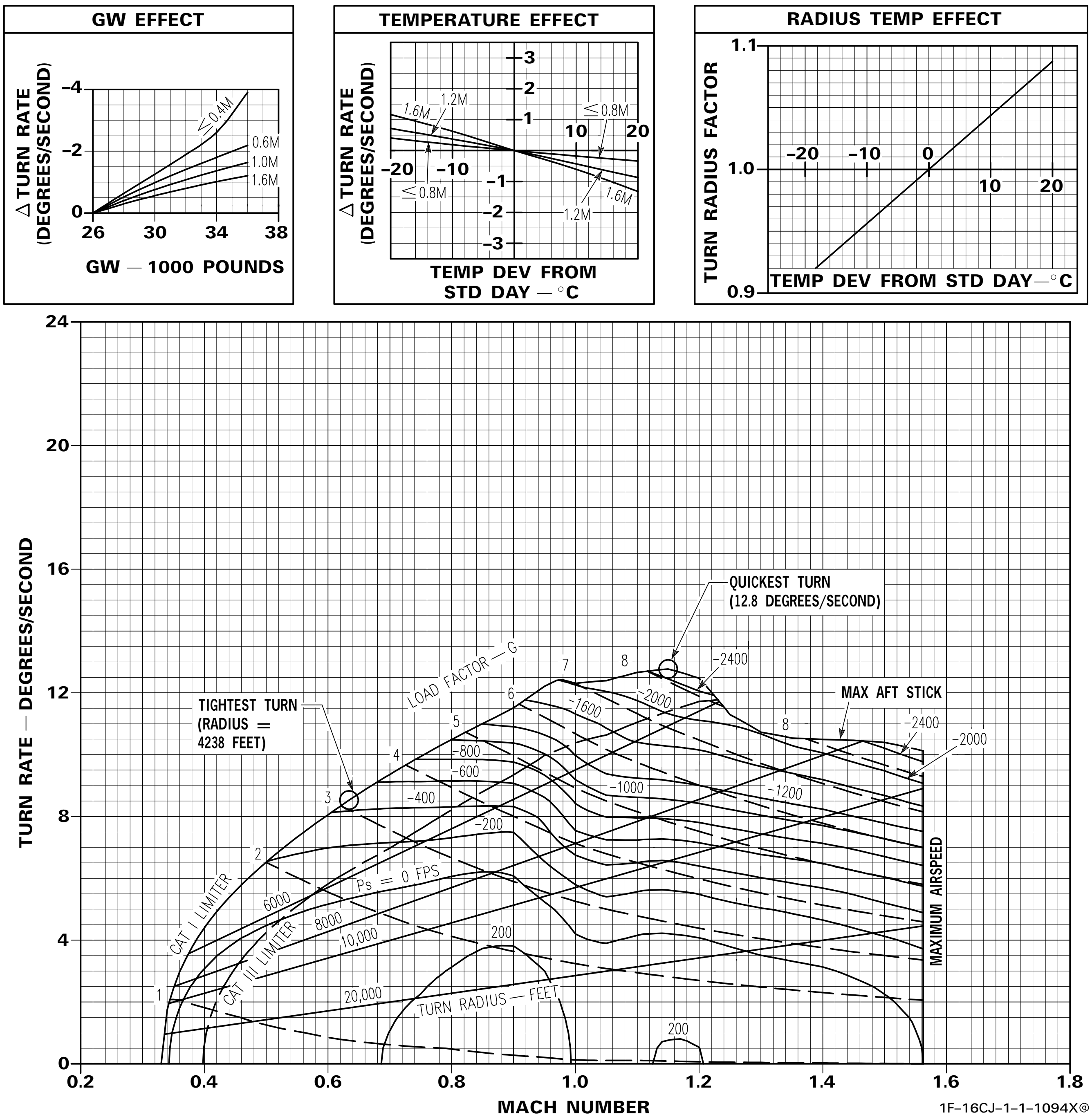


Figure A8-56.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- **DRAG INDEX = 150**
- **GW = 28,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

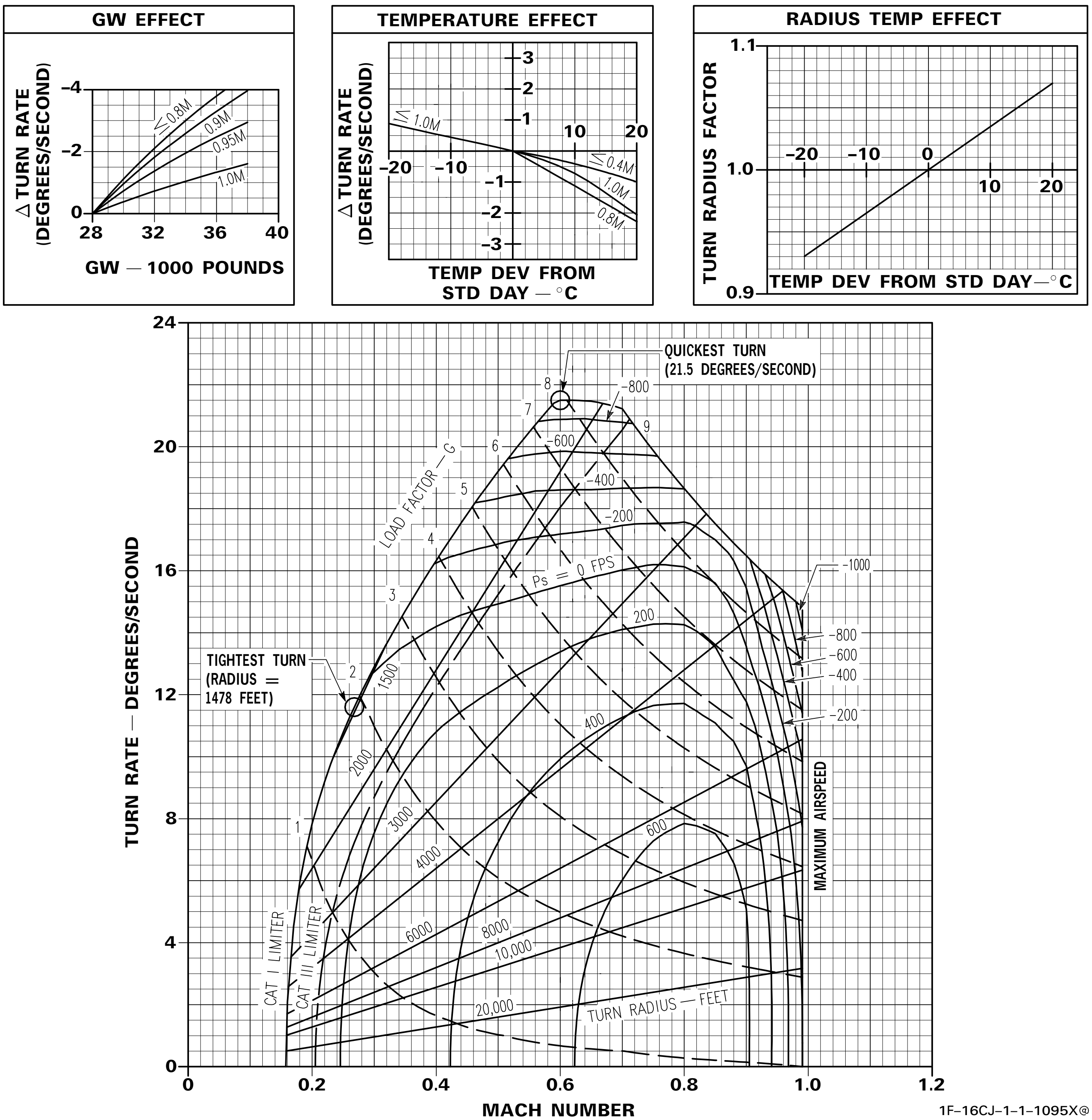


Figure A8-57.

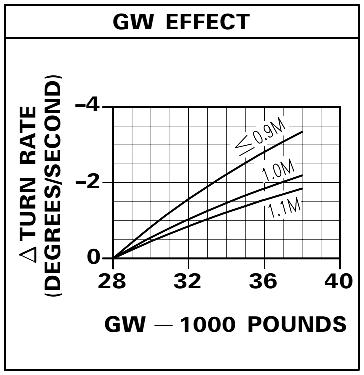
Turn Performance — 10,000 Feet

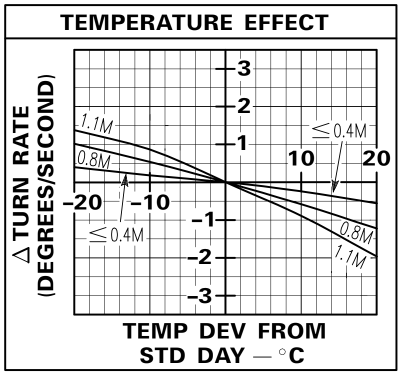
DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

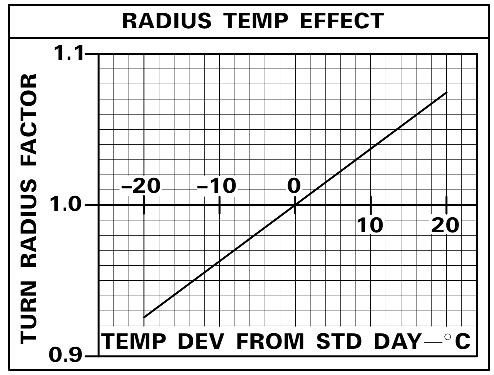
CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







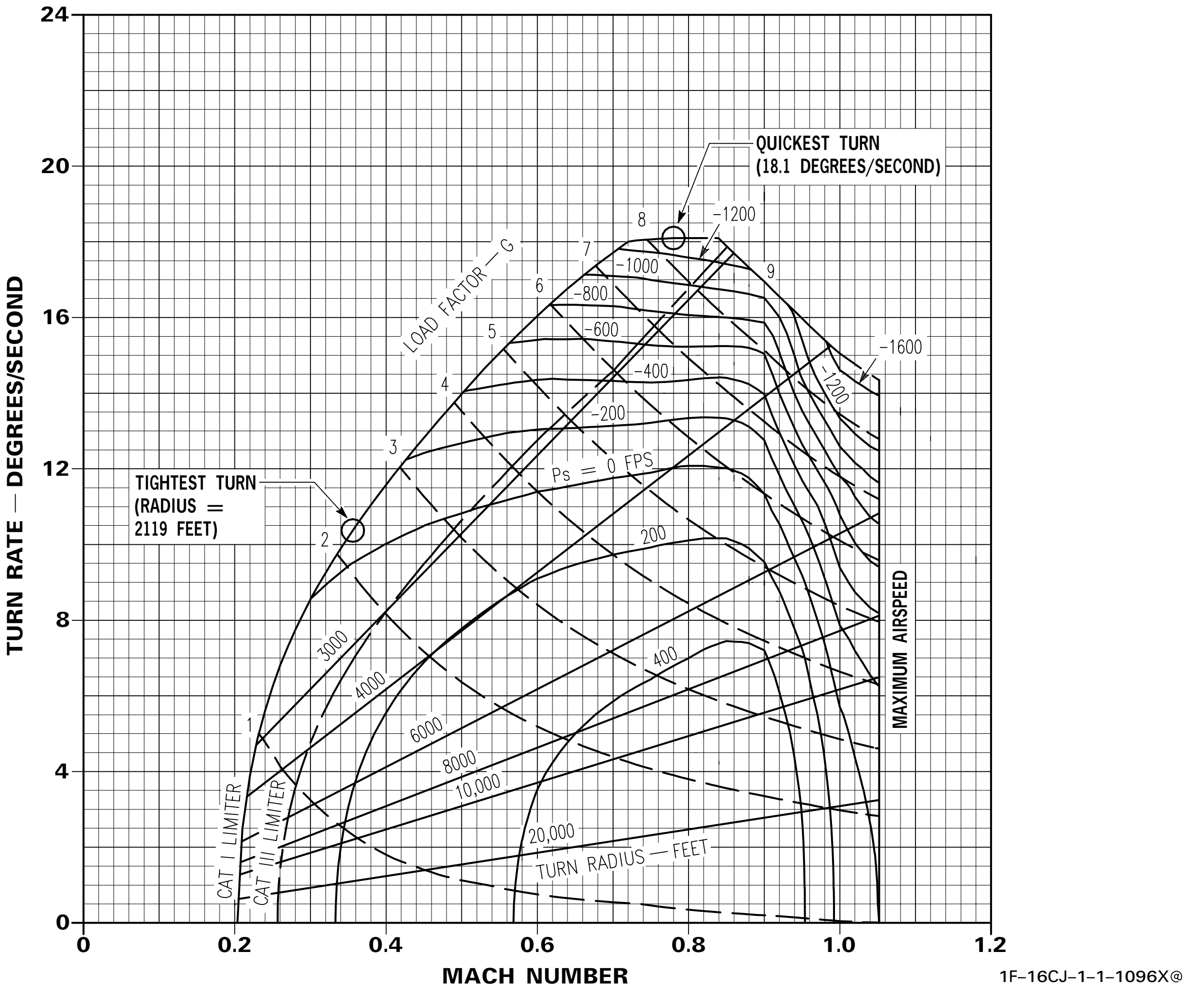


Figure A8-58.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST — **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

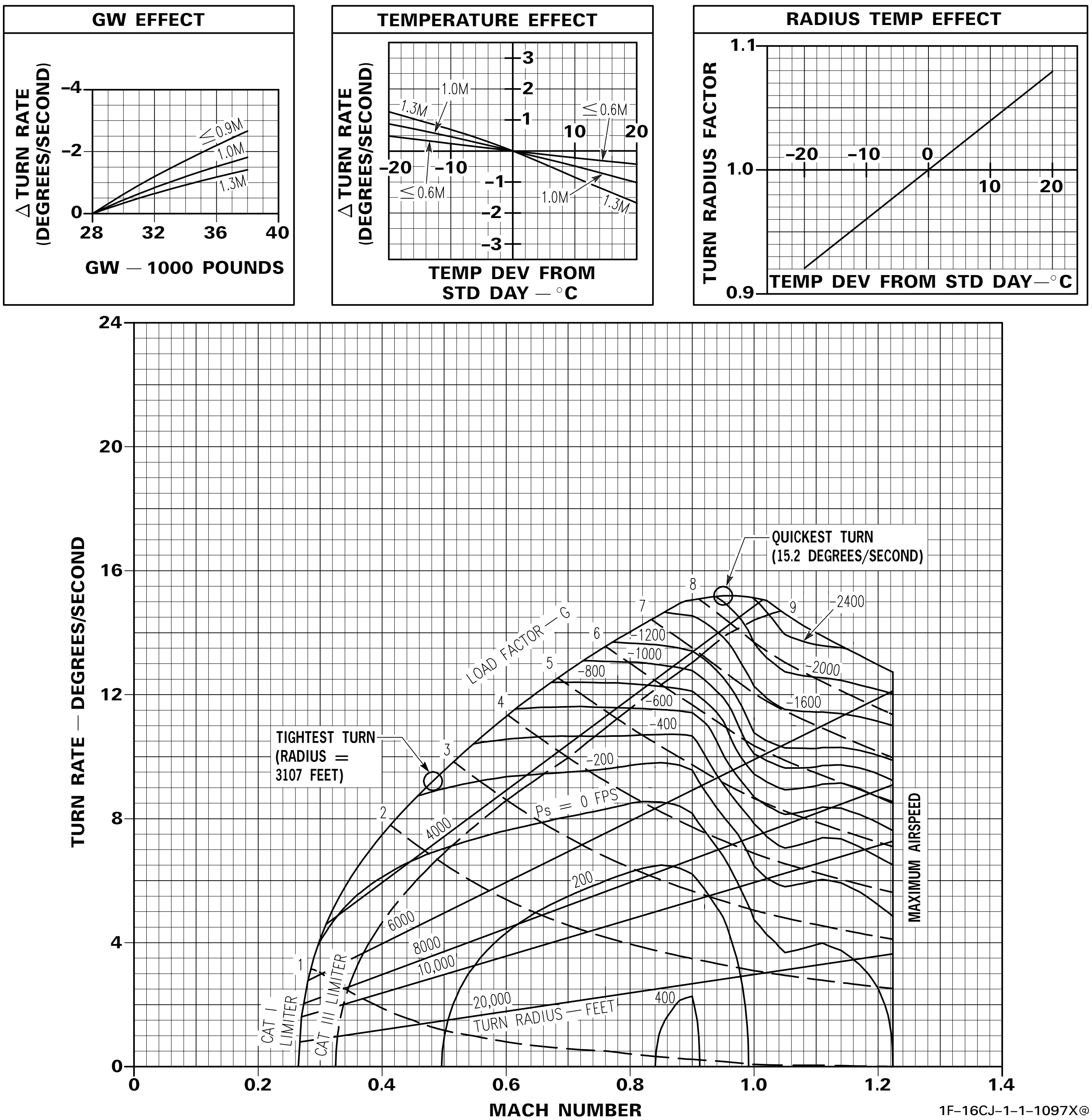


Figure A8-59.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

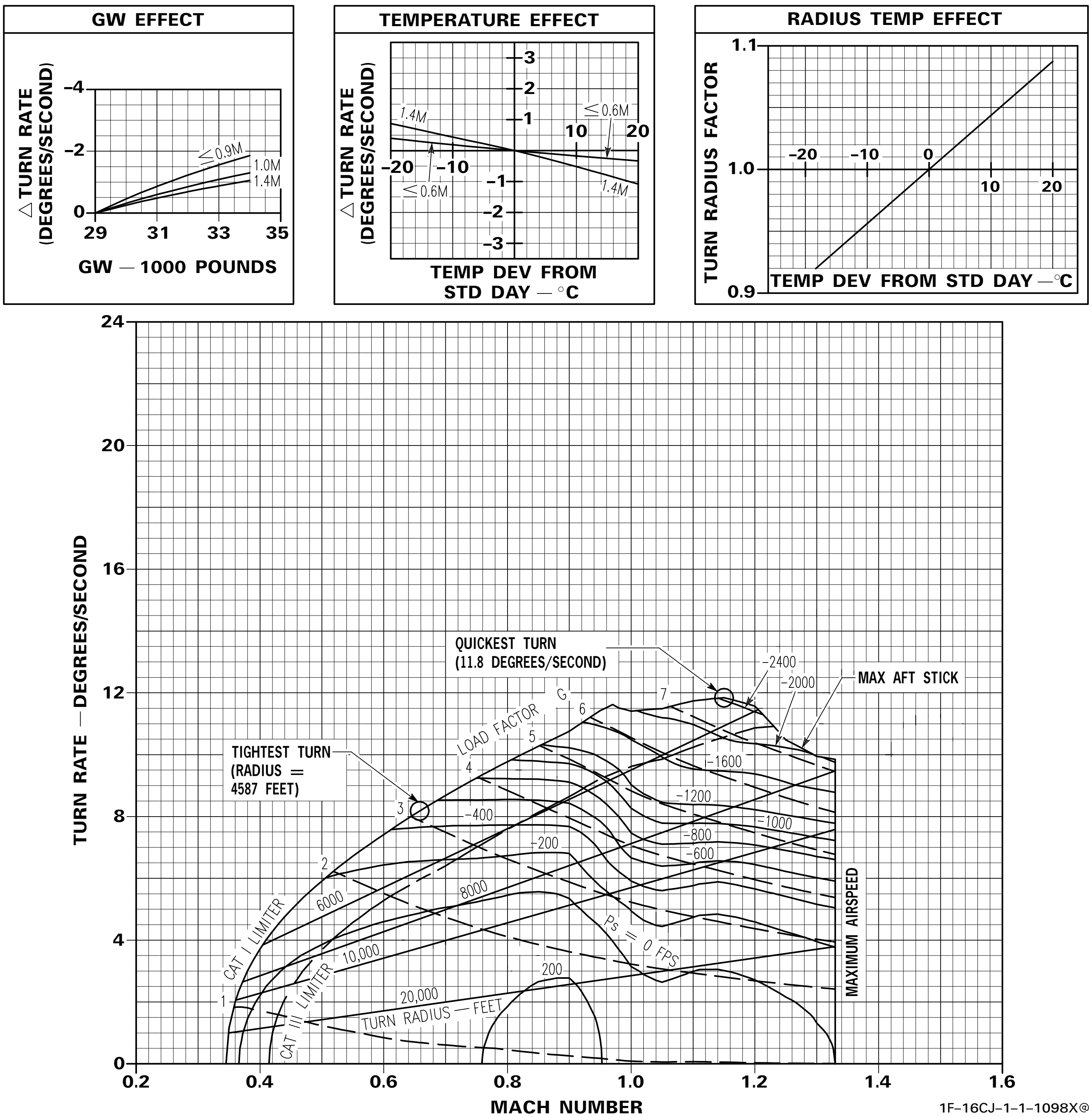


Figure A8-60.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

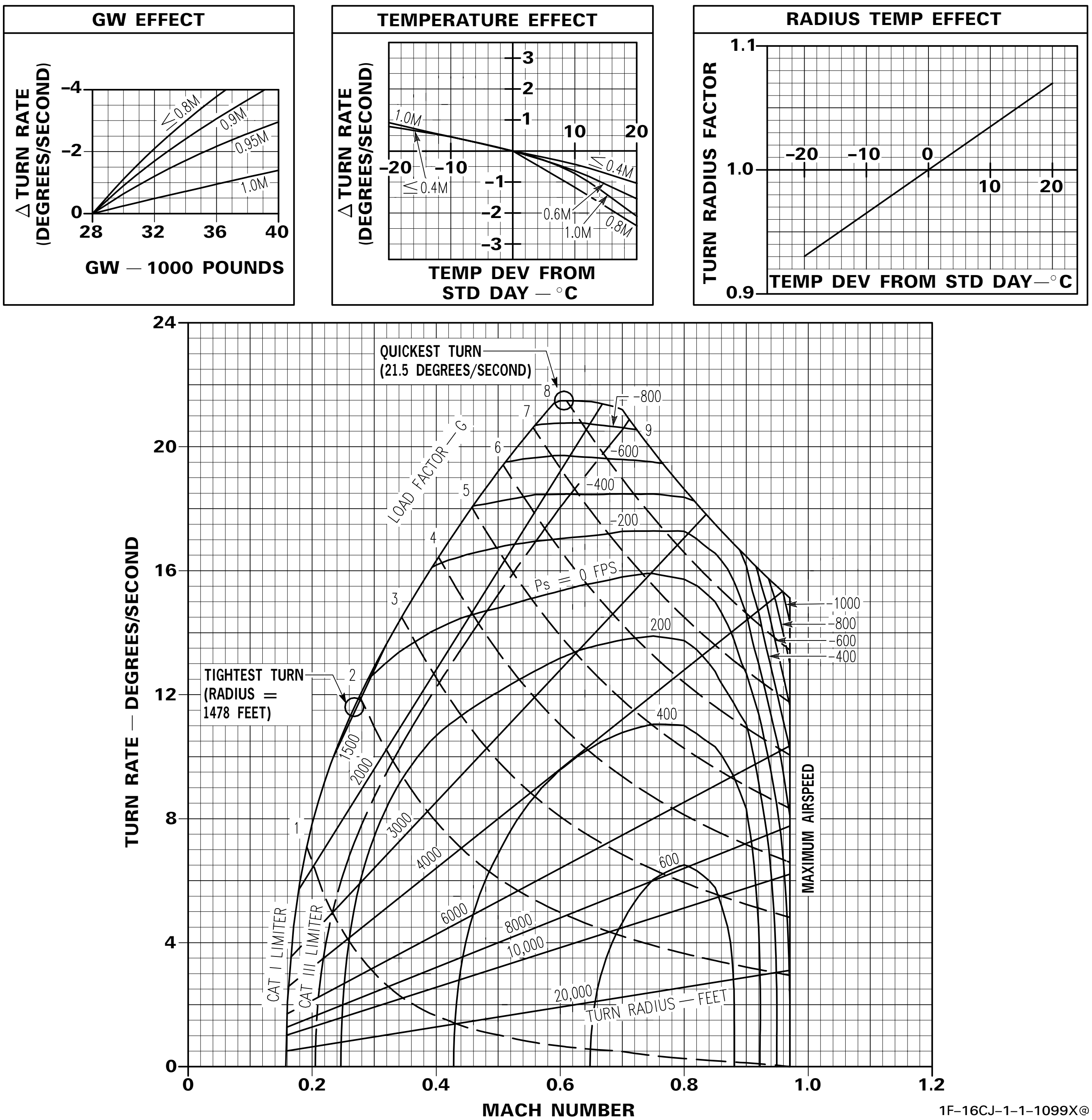


Figure A8-61.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

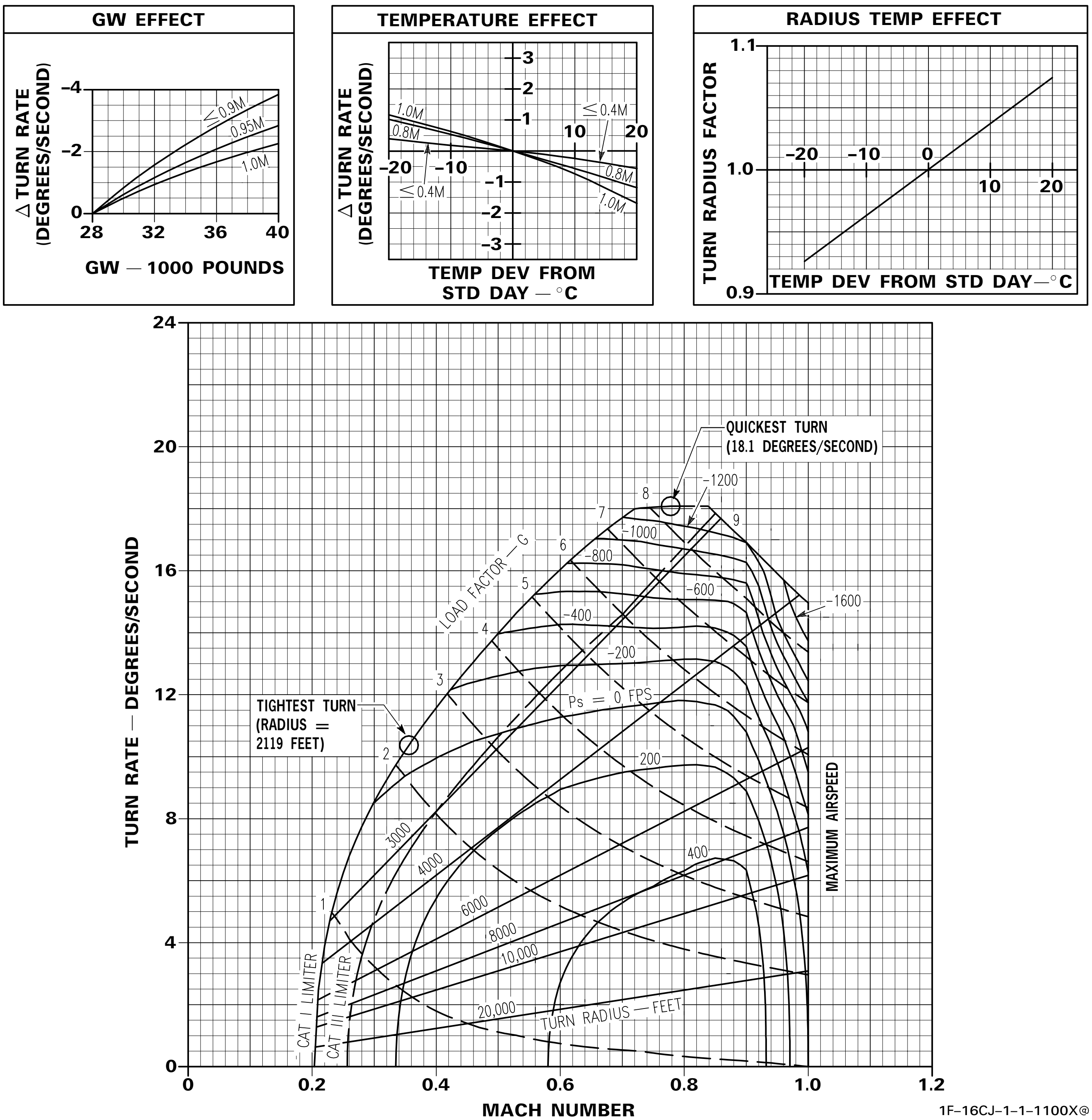


Figure A8-62.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

CONFIGURATION:

- **DRAG INDEX = 200**
- **GW = 28,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

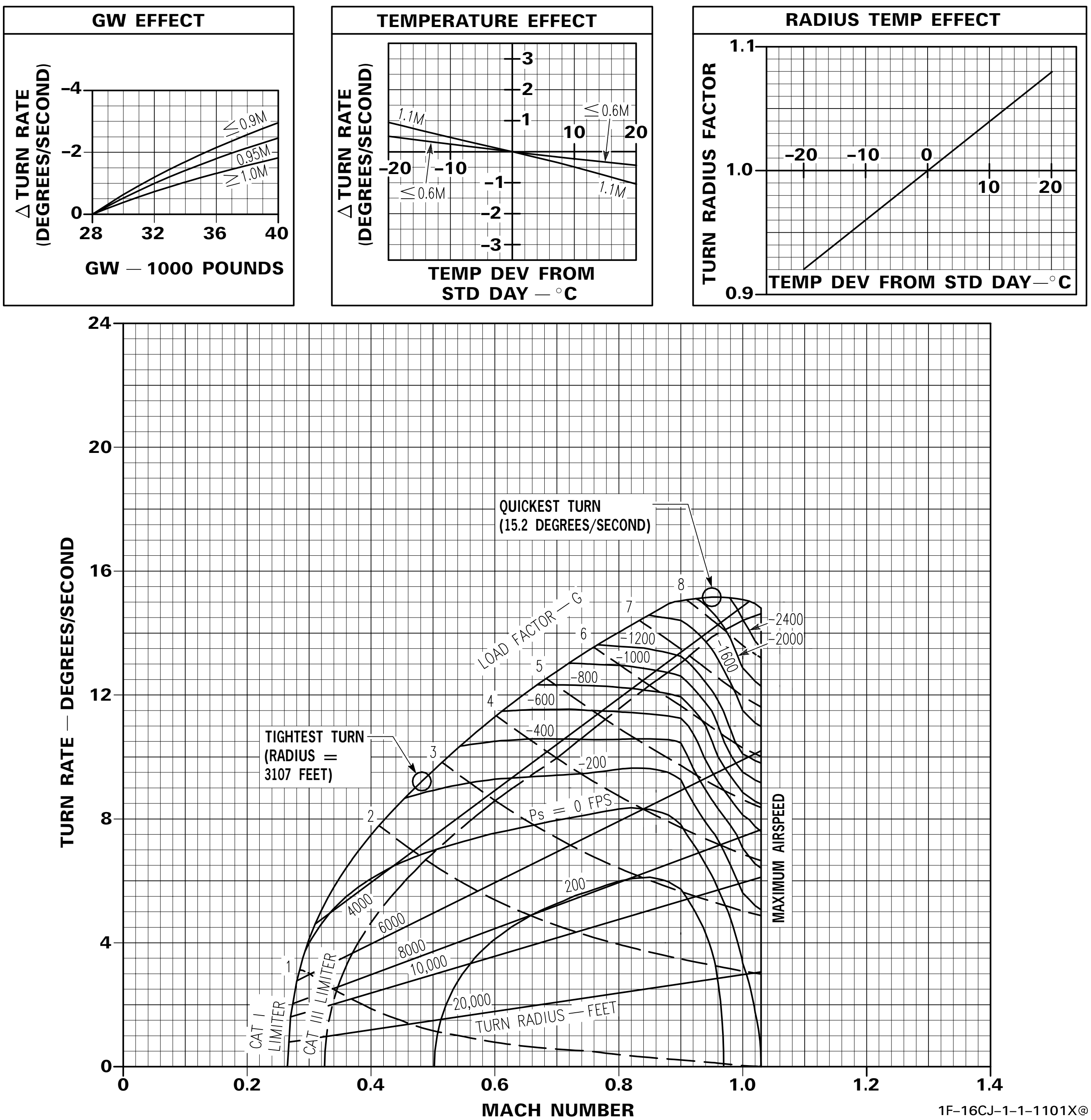


Figure A8-63.

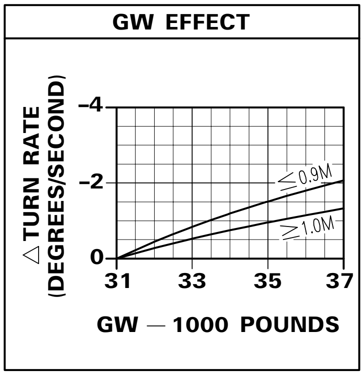
Turn Performance — 30,000 Feet

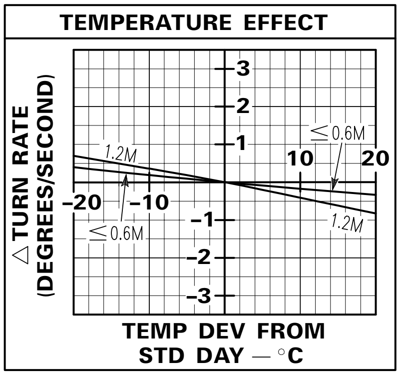
DATA BASIS FLIGHT TEST **ENGINE F100–PW–229**

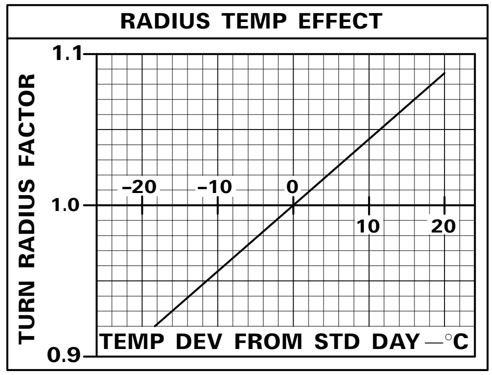
CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







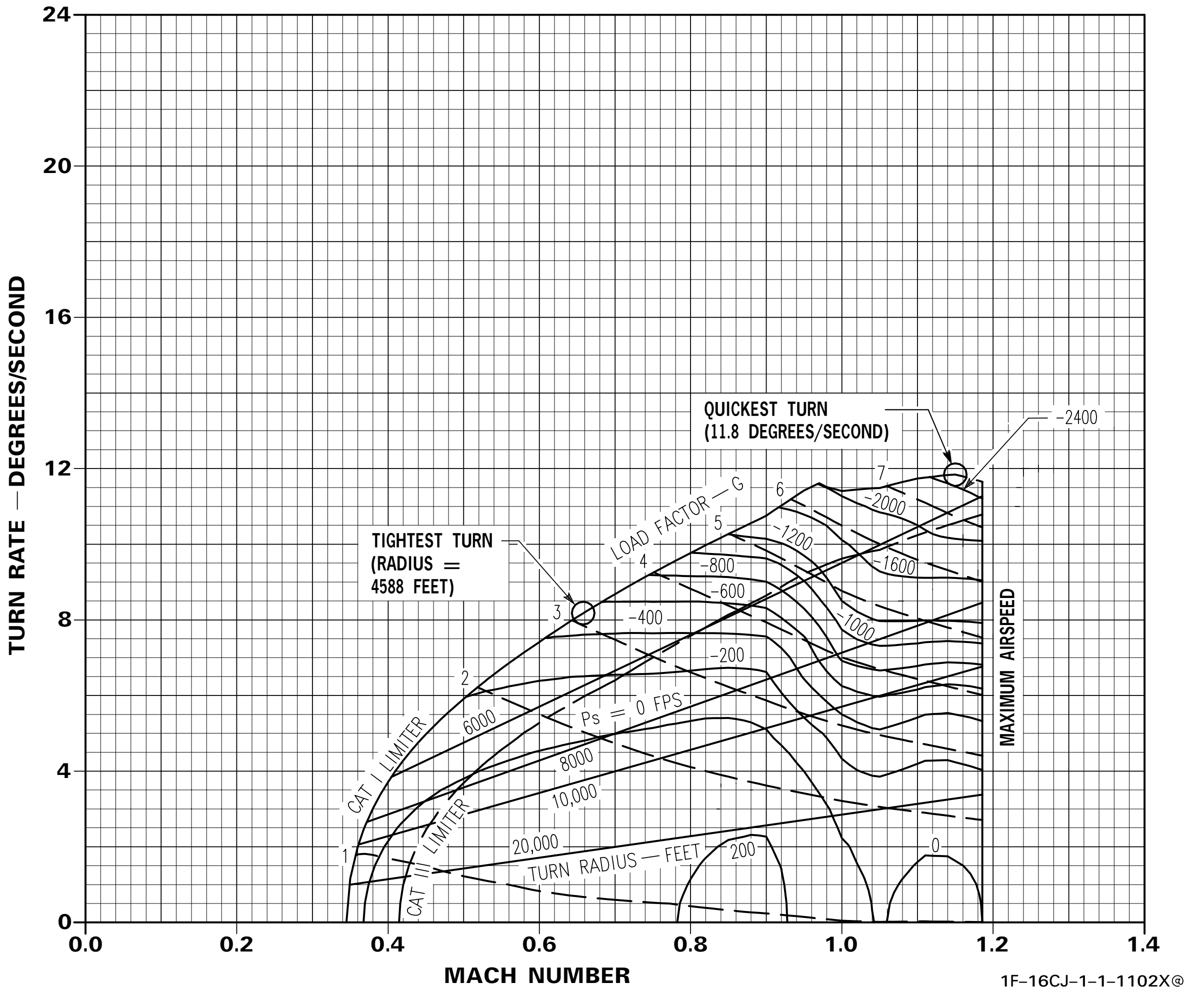


Figure A8-64.

Deceleration — 20,000 Feet

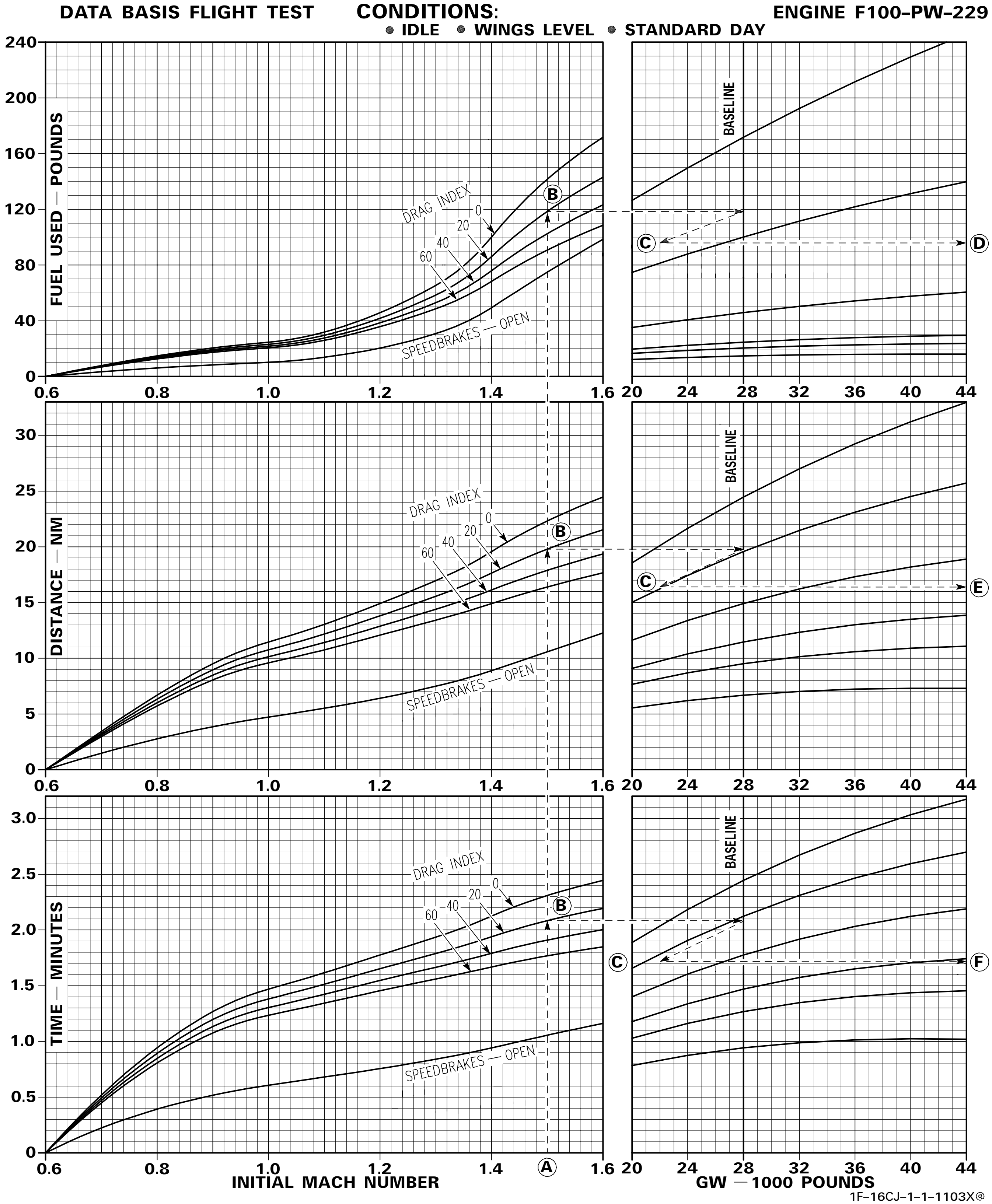


Figure A8-65. (Sheet 1)

Deceleration — 30,000 Feet

DATA BASIS FLIGHT TEST

CONDITIONS:
- IDLE
- WINGS LEVEL
- STANDARD DAY

ENGINE F100-PW-229

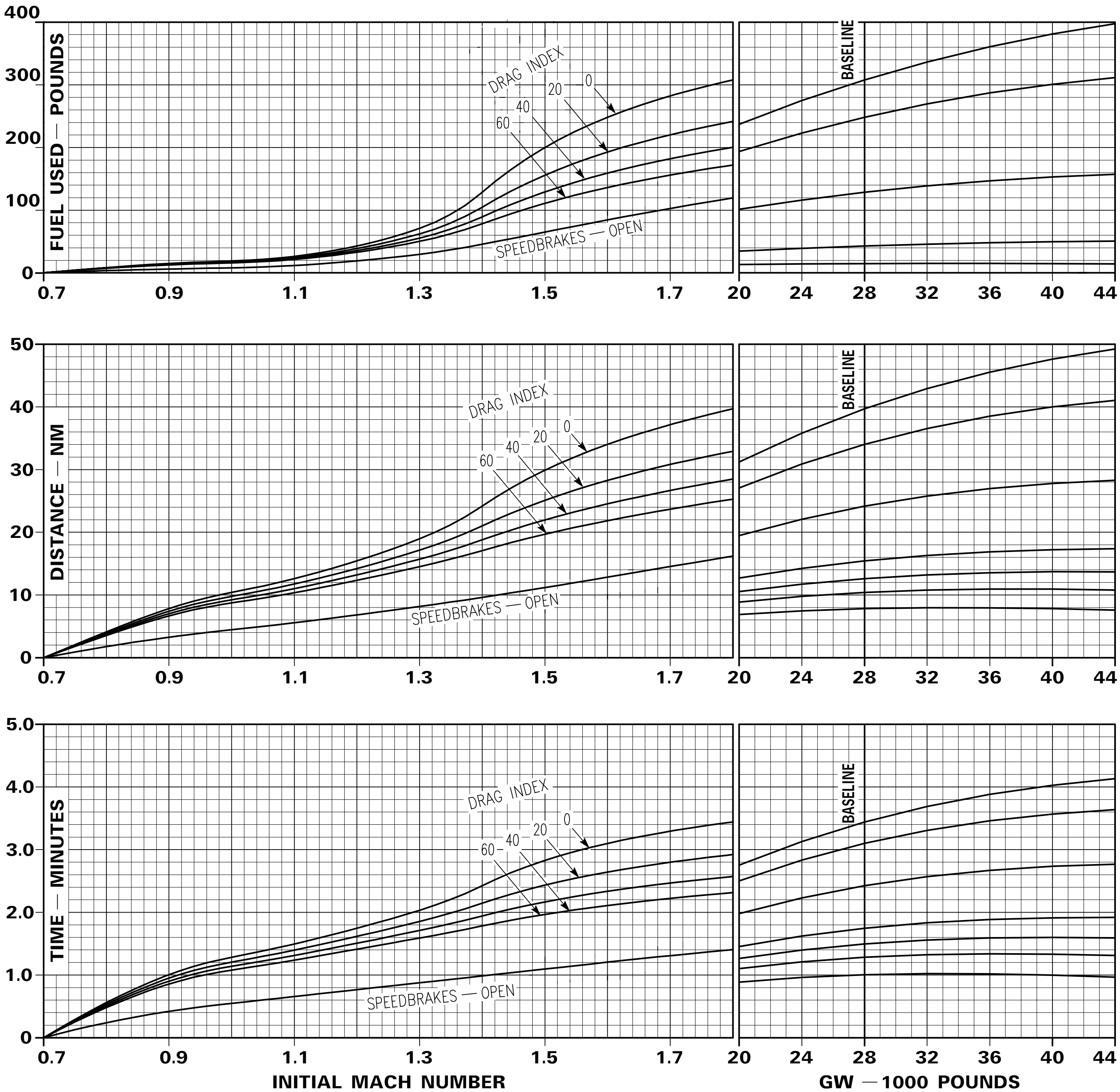


Figure A8-65. (Sheet 2)

Deceleration — 40,000 Feet

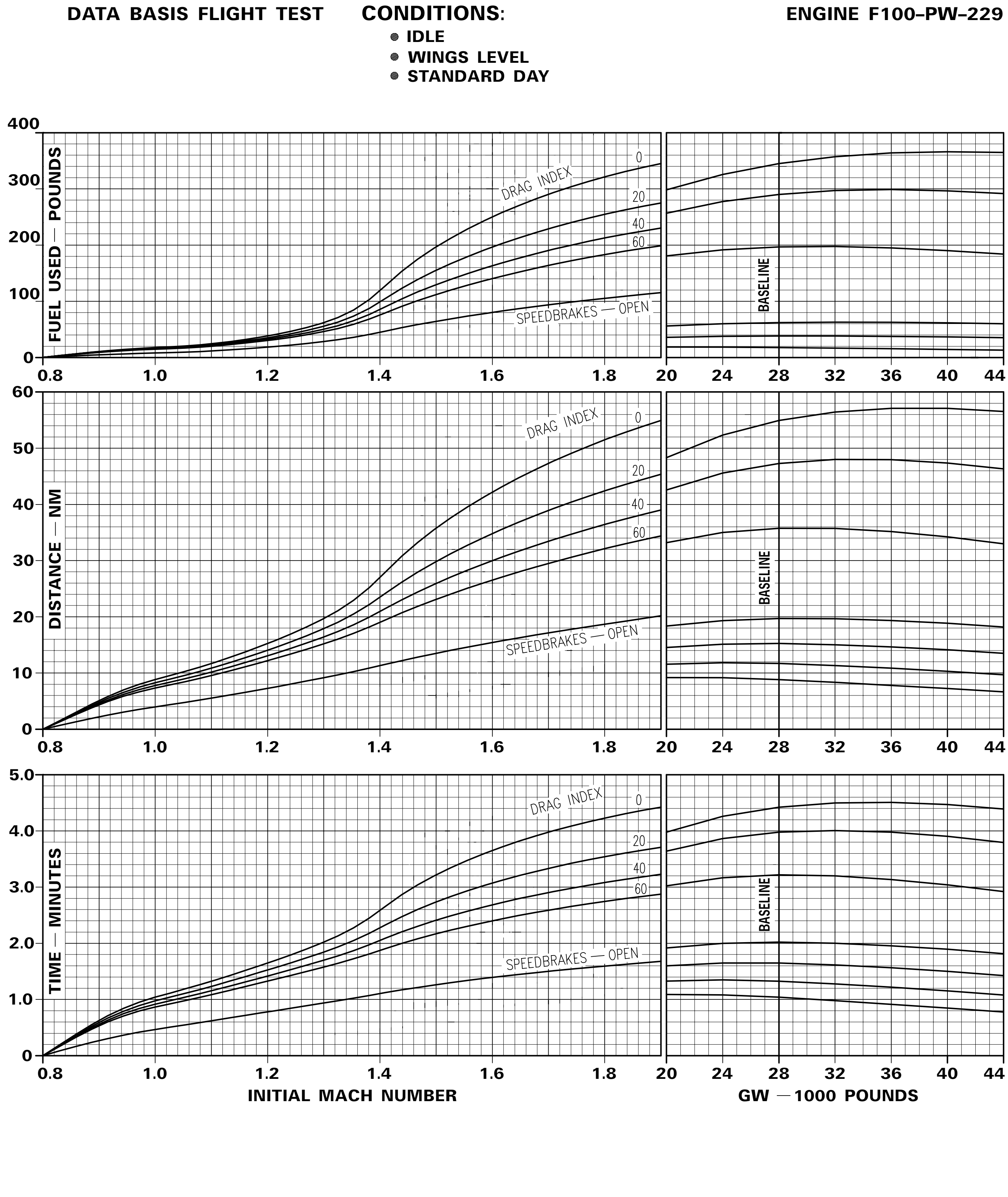


Figure A8-65. (Sheet 3)

PART 9 — MISSION PLANNING

TABLE OF CONTENTS

LIST OF CHARTS

MISSION PLANNING

The charts presented in Parts 1 through 8 provide performance data necessary to plan all types of missions. The information in this part describes how the performance data of Parts 1 through 8 may be integrated into a complete mission. A mission is defined as a series of flight phases combined in a particular order. The aircraft is capable of a wide altitude and speed range. This wide range of flight variables makes premission planning a necessity. A particular mission, for example, may require a high speed or a low level penetration. The fuel consumption rate for such mission phases may be high and therefore not allow much margin for error. Any delay in breaking off from one of these phases can seriously deplete the planned fuel reserves for other phases reducing the radius available; therefore, accurate mission planning and constant checking of progress against the flight plan are necessary. The steps to be followed in planning a mission are completely straightforward although detailed. A brief outline of the steps to be followed is:

1. Define the mission objective(s).
2. Define the aircraft payload (stores, external fuel tanks, etc.) and weights.
3. Define the mission profile (altitudes, speeds, stores release, entry points, takeoff and recovery bases, etc.) and sequences.
4. Assemble miscellaneous data – weather conditions, field information, etc.
5. Compute required takeoff and landing data.
6. Compute mission performance.

Step 6 in the outline above may involve the relatively simple problem of computing the amount of fuel required to fly one or two legs of a mission or may involve a more complex mission plan involving tradeoffs between total mission distance and penetration radius or perhaps an involved series of legs which would stretch the performance capabilities of the aircraft to its maximum. The easiest method to evaluate mission capabilities where tradeoffs are required is the mission wedge. The mission wedge is a graphical technique used to integrate calculations for various legs into a complete mission. The name is derived from the characteristic wedge shape of the plot. (Refer to figure A9-10 for a typical mission wedge.) GW is plotted versus distance for each mission phase. The usefulness of the wedge lies in the fact that a line representing a cruise leg, for instance, can be plotted anywhere on the graph and then transferred to any other starting point on the graph by using dividers or parallel rulers as long as the slope of the line is unchanged and the GW's at the ends of the transferred line remain the same. Using this technique, a cruise or dash leg has to be computed only once and may be transferred rangewise to any desired starting point. Stores release can be defined by a vertical line connecting outbound and inbound legs. The length of the vertical line is equal to the weight of the stores to be released. Following through the mission planning example should provide some insight as to the method used to construct a mission wedge.

MISSION DESCRIPTIONS

The first step in mission planning is to establish the series of flight phases that constitute a mission. Example missions defined in figure A9-1 are for a Deployment Mission and a Hi-Lo-Lo-Hi Mission. Notice that any mission involves a distinct series of flight phases, a payload, and a mission objective. The mission objective for a deployment mission is to demonstrate the range available or to determine the fuel requirements to fly to a predetermined landing point or objective.

NOTE

These example missions are not intended to necessarily represent actual or proposed missions. Assumed values are used in the sample problems throughout this appendix. The sample problems are aids in using the appendix and are not necessarily applicable to specific configurations.

The mechanics of mission planning are learned by planning the example missions illustrated in figure A9-1. By using the charts to plan a mission, the mission planner will become better acquainted with the performance of the aircraft and more familiar with the techniques of using the performance data charts.

DEPLOYMENT MISSION PLANNING

The deployment mission establishes the basic rules and procedures of mission planning. The order in which the various flight phases are evaluated is established from experience as being the most efficient method in terms of avoiding backtracking and excessive revisions as the mission plan develops.

MISSION DESCRIPTION

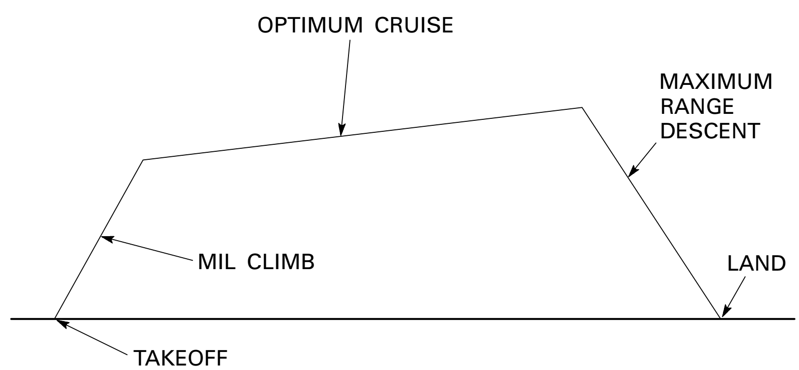
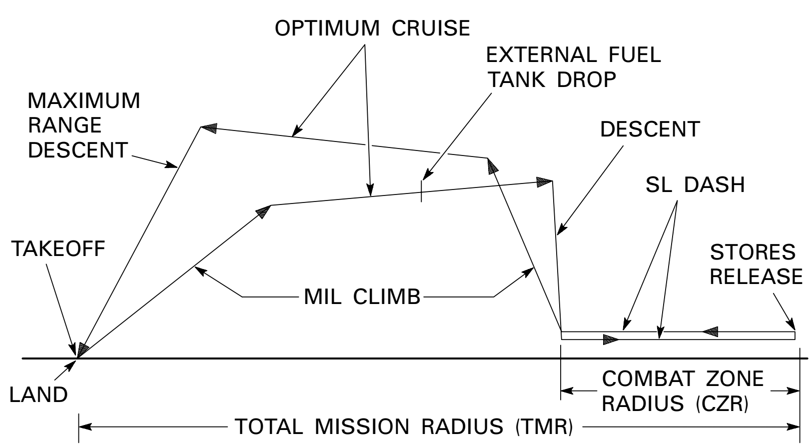
Before any performance data is computed, a considerable amount of information is needed. This information includes mission objective(s), mission profile, aircraft payload and GW, weather conditions, and field information. Refer to MISSION PLANNING GUIDE, this part, to determine pertinent flight data.

MISSION PLANNING GUIDE

Use this guide and the referenced data to determine the following:

1. AIRCRAFT WEIGHT.
   - Refer to Weight and Balance Handbook for aircraft operating weight.
   - Refer to DRAG INDEX AND CONFIGURATION WEIGHT, Part 1.
2. TAKEOFF PLANNING.
   - TAKEOFF FACTOR, Part 2.
   - TAKEOFF SPEED, Part 2.
   - TAKEOFF AND LANDING CROSSWIND LIMITS, Part 2.
   - TAKEOFF DISTANCE, Part 2.
   - ACCELERATION CHECK SPEED, Part 2.
   - REFUSAL SPEED, Part 2.
   - BRAKE ENERGY LIMITS – MAXIMUM EFFORT BRAKING, Part 2.
     - Determine maximum brake speed.
3. TAKEOFF FUEL ALLOWANCE.
   - GROUND OPERATIONS FUEL CONSUMPTION, Part 3.
   - CLIMBOUT FUEL, TIME, AND DISTANCE, Part 3.
     - Determine fuel for takeoff and acceleration to climb speed.
4. CLIMB.
   - CRUISE CEILINGS AND OPTIMUM CRUISE ALTITUDE, Part 3.
     - Determine optimum cruise altitude.

Typical Mission Descriptions

MISSION TYPE	MISSION PROFILE	MISSION OBJECTIVE
DEPLOYMENT MISSION		DEMONSTRATE DEPLOYMENT CAPABILITY
HI–LO–LO–HI MISSION		DEMONSTRATE LOW ALTITUDE CAPABILITY

1F–16X–1–1–0016X@

Figure A9-1.

- CLIMBOUT FUEL, TIME, AND DISTANCE, Part 3.

5. CRUISE.

- OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE, Part 4.
  - Determine specific range, cruise altitude, and cruise mach number as a function of GW and drag index.
- MISCELLANEOUS CHARTS, Part 1.
  - Determine the temperature for the optimum cruise altitude.
- FUEL FLOW CONVERSION, Part 4.
  - Determine true airspeed, specific range, and fuel flow.
- Use the information above to determine total distance and fuel.

6. DESCENT.

- MAXIMUM RANGE DESCENT, Part 6.
  - Determine range, fuel, speed, and time.

7. LANDING.

- FINAL APPROACH AND TOUCHDOWN SPEED, Part 7.
- SHORT FIELD LANDING, Part 7.

This guide is used for basic mission planning and provides the basic steps to determine takeoff, climb, cruise, descent, and landing data to complete the following detailed Hi-Lo-Lo-Hi mission planning example.

HI-LO-LO-HI MISSION PLANNING

MISSION DESCRIPTION

An example mission plan is for an all subsonic mission having a Hi-Lo-Lo-Hi radius profile. (Refer to figure A9-1.) The following paragraphs contain the information concerning payloads, mission rules, weather conditions, etc., needed to begin mission planning.

MISSION OBJECTIVE

Demonstrate the low altitude capability of the aircraft assuming a sea level penetration beginning 600 nm from base. The sea level penetration radius must be computed for this entry point. Penetration radii based on other entry points will be evaluated.

MISSION CONFIGURATION

Aircraft (single seat) is loaded with (2) AIM-9 missiles, (2) MK 84 bombs at stations 3 and 7, (2) 370-gallon fuel tanks at stations 4 and 6. The (2) AIM-9 missiles are retained for the entire flight. The (2) 370-gallon fuel tanks are dropped when empty and the (2) MK 84 bombs are dropped at the penetration radius point.

SUPPLEMENTAL WEATHER INFORMATION

Enroute: standard day conditions with zero wind.

MISSION RULES

The following mission rules and sequences are assumed for this example Hi-Lo-Lo-Hi radius mission:

1. Engine start, taxi, MIL takeoff, and acceleration to climb speed.
2. Climb on course at MIL to the optimum cruise altitude.
3. Cruise on course at optimum cruise conditions.
4. Descent on course at 300 KIAS, at 75 percent rpm with speedbrakes open to penetration altitude. Accelerate to dash mach. End acceleration at entry point.
5. Dash (outbound) at sea level, 0.85 mach to target.
6. Release stores over target.
7. Cruise (inbound) at sea level, optimum KTAS.
8. Climb at MIL to the optimum cruise altitude. Start climb at same distance from base as entry point.
9. Cruise (inbound) at optimum cruise conditions.

10. Descent at maximum range descent airspeed and IDLE to base.

11. Land with 1000 pounds of fuel remaining.

Since this example mission is a radius mission, the sum of the distances of the outbound segments (segments 1, 2, 3, 4, and 5) must equal the sum of the distances of the inbound segments (segments 7, 8, 9, and 10). The total distance of segment 5 must equal the total distance of segment 7 since the dash portions must also be equal.

OUTBOUND CRUISE TO EXTERNAL FUEL TANK DROP

The integration of the cruise segment to the external fuel tank drop is shown in figure A9-2. The external fuel tanks at stations 4 and 6 are dropped at the end of this cruise segment. The drop weight (900 pounds) includes the weight of the two external fuel tanks and their unusable fuel at stations 4 and 6. The results of the mission planning to this point are shown in figure A9-2. GW at the end of this sequence = 29,494 (tanks empty) – 900 (tanks and pylons) = 28,594 pounds.

OUTBOUND CRUISE AFTER EXTERNAL FUEL TANK DROPS

The optimum cruise range data with (2) AIM-9 missiles + (2) MK 84 bombs is obtained from the OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE, Part 4. The integration of this cruise segment must continue to an outbound distance where, for the maximum radius case, fuel remaining is just sufficient to descend to sea level, accelerate to 0.85 mach, deliver the stores, climb to cruise altitude, and cruise back to base. That point is defined as the maximum total mission radius (zero sea level penetration distance). For this example mission, the tabular cruise calculation, figure A9-2, continues to a GW of 25,000 pounds; the outbound distance at this GW is 1121 nm. The exact distance which corresponds to the maximum total mission radius is defined later. The results of the mission planning to this point are shown graphically in figure A9-3. The ground operation, takeoff and acceleration to climb speed, MIL climb, and the cruise segments are shown. The outbound cruise line shown in figure A9-3 represents items 1, 2, and 3 of the mission rules. In order to complete the outbound portion of the mission wedge up to the start of the sea level penetration, the on-course descent and acceleration to penetration speed (item 4 of mission rules) must be considered.

DESCENT TO PENETRATION ALTITUDE

The on-course penetration descent to penetration altitude is flown at 300 KIAS. This descent is a relatively high speed descent which comes closest to reaching sea level at dash conditions. Because 300 KIAS at sea level standard day is equivalent to 0.45 mach, an acceleration to the dash of 0.85 mach is required. The on-course descent and sea level acceleration data is used in conjunction with the cruise line defined in figure A9-3 to define the outbound data necessary to satisfy items 1, 2, 3, and 4 of the mission rules. The planning of this mission sequence requires that descent/acceleration data be computed based on starting at several points along the cruise line. Since the prime objective of this example mission specifies a sea level penetration beginning 600 nm from base, the area of interest for the descent/acceleration is after all 370-gallon fuel tanks have been dropped (496 nm from base).

NOTE

> The aspects of having specified a lower range to the initial penetration point are not discussed here.

Figure A9-4 shows a tabulation of the cruise line, descent, and acceleration data as a function of initial descent GW. The descent and acceleration fuel is subtracted from the initial descent GW to define the end descent/acceleration GW. Similarly, the descent and acceleration distance is added to the range at the initial descent GW to define the end descent/acceleration range. The data for the descent/acceleration is discussed below for a descent with an initial descent GW of 27,000 pounds, beginning at a distance of 765 nm. The altitude at initiation of the descent maneuver is obtained from the OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE, Part 4. The descent fuel, range, and time are obtained from PENETRATION, Part 6. Now, obtain fuel, distance, and time required to accelerate at sea level from 0.45-0.85 mach. The several descent/acceleration cases shown in the tabulation of figure A9-4 are also shown graphically plotted from the cruise line in figure A9-4. The data summarizes the results of the mission integration through items 1, 2, 3, and 4 of the mission rules. The data defines the high altitude outbound portion of the example Hi-Lo-Lo-Hi mission.

Outbound Cruise to External Fuel Tank Drop

CONFIGURATION:

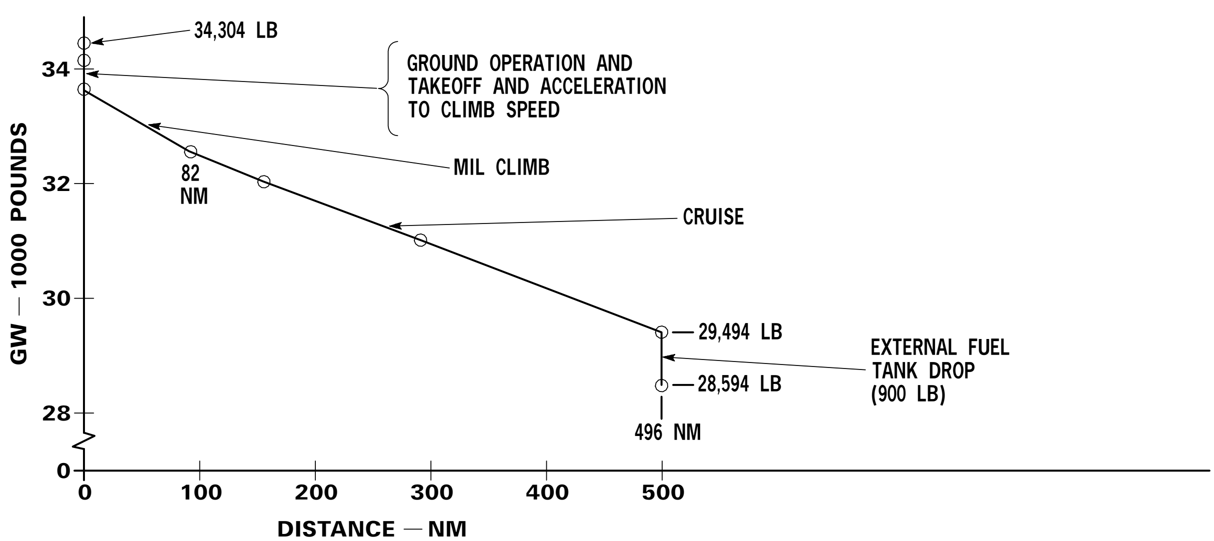
- **(2) AIM-9 MISSILES**
- **(2) 370-GALLON FUEL TANKS**
- **(2) MK 84 BOMBS**
- **DRAG INDEX = 136**

CONDITIONS:

- **STANDARD DAY**
- **NO WIND**

MISSION PHASE	GW	Δ *WEIGHT	AVERAGE GW	SPECIFIC RANGE	Δ DISTANCE	TOTAL DISTANCE
	LB ①	LB ②	LB ③	NM/LB ④	NM ⑤ ② x ④	NM ⑥ Σ⑤
	34,304					0
TAXI		125	—	—	—	
	34,179					0
TAKEOFF		300	—	—	—	
	33,879					0
CLIMB		1265	—	—	82	
	32,614					82
CRUISE		614	32,307	0.129	79	
	32,000					161
CRUISE		1000	31,500	0.132	132	
	31,000					293
CRUISE		1506	30,247	0.135	203	
	29,494					496
EXTERNAL		(900)	—	—	—	
FUEL TANK	28,594					496
DROP						

* TOTAL FUEL CONSUMED = 4810 POUNDS.



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Figure A9-2.

Outbound Cruise

CONFIGURATION:
- (2) AIM-9 MISSILES
- (2) MK 84 BOMBS
- DRAG INDEX = 72

CONDITIONS:
- STANDARD DAY
- NO WIND

MISSION PHASE	GW	Δ WEIGHT	AVERAGE GW	SPECIFIC RANGE	Δ DISTANCE	TOTAL DISTANCE
	LB ①	LB ②	LB ③	NM/LB ④	NM ⑤ ② x ④	NM ⑥ Σ ⑤
CRUISE	28,594					496
		1594	27,797	0.169	269	
CRUISE	27,000					765
		1000	26,500	0.175	175	
CRUISE	26,000					940
		1000	25,500	0.181	181	
CRUISE	25,000					1121

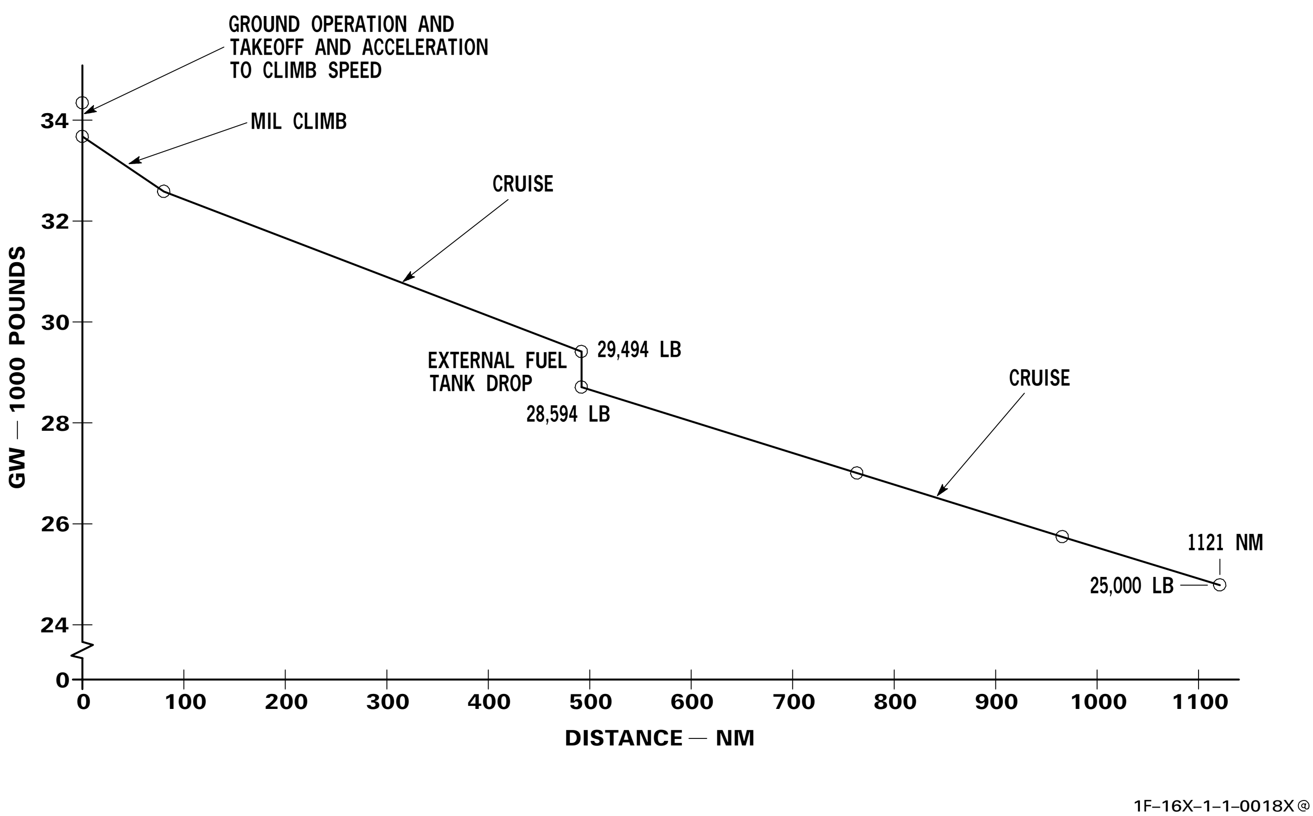


Figure A9-3.

Descent and Acceleration to Dash

CONFIGURATION:
- (2) AIM-9 MISSILES
- (2) MK 84 BOMBS
- DRAG INDEX = 72

CONDITIONS:
- STANDARD DAY
- SEA LEVEL

GW	DISTANCE	CRUISE ALTITUDE	DESCENT FUEL	DESCENT DISTANCE	DESCENT TIME	GW AT END OF DESCENT	ACCELERATION FUEL	ACCELERATION DISTANCE	ACCELERATION TIME	FINAL GW	FINAL DISTANCE	DESCENT ACCEL TIME
LB ①	NM ②	FT ③	LB ④	NM ⑤	MIN ⑥	LB ⑦ ① - ④	LB ⑧	NM ⑨	MIN ⑩	LB ⑪ ⑦ - ⑧	NM ⑫ ② - ⑤ - ⑨	MIN ⑬ ⑥ - ⑩
28,594	496	36,700	460	49	7.8	28,134	231	9	1.2	27,903	554	9.0
27,000	765	37,900	450	48	7.7	26,550	219	9	1.1	26,331	822	8.8
26,000	940	38,700	450	48	7.6	25,550	211	8	1.1	25,339	996	8.7
25,000	1121	39,500	440	47	7.5	24,560	203	8	1.0	24,357	1176	8.5
			← DESCENT TO SEA LEVEL →				← ACCEL FROM 0.45 TO 0.85 MACH →					

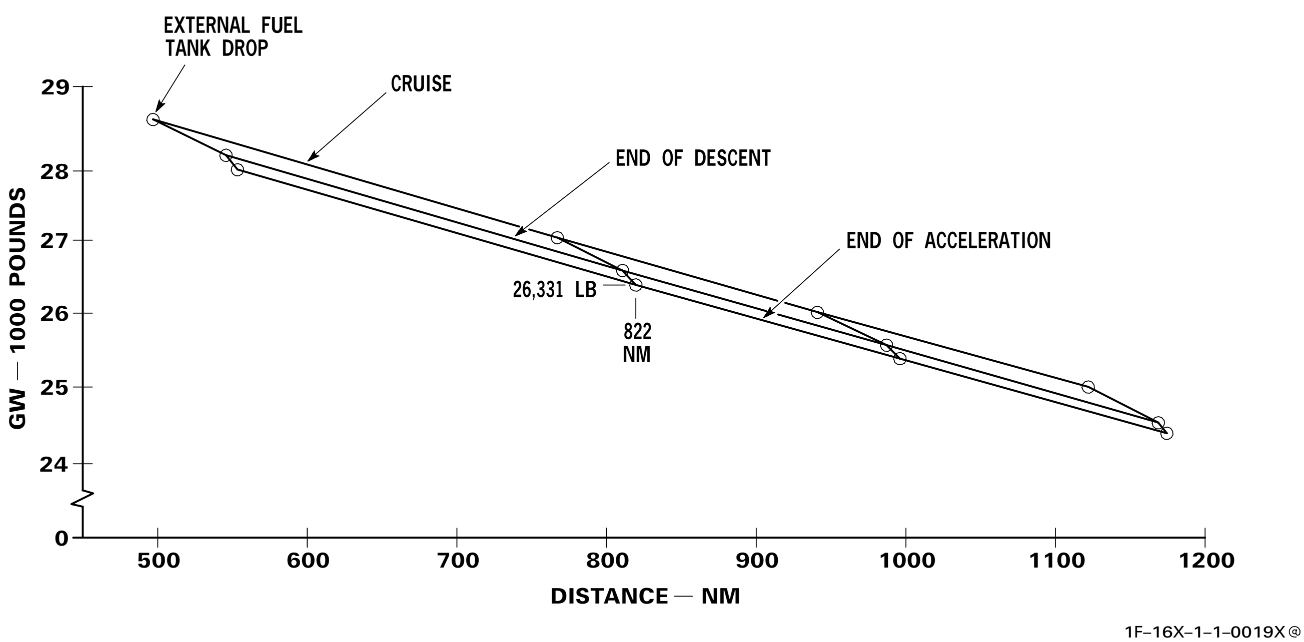


Figure A9-4.

DESCENT BEFORE LANDING

When all outbound legs of a mission are worked out, it is necessary to find a point on the return legs at which the GW and distance are known. For this example mission, the primary objective is to demonstrate maximum sea level penetration capability based on an entry point 600 nm from base. A secondary objective of the planning exercise is to determine the tradeoff between entry point distance and penetration distance. There is only one point on the return leg which can be defined – landing. It is known that landing will be accomplished at zero distance with 1000 pounds of fuel remaining. The return legs are planned in reverse order, beginning with the descent before landing.

The GW is the operating weight plus the nonjettisonable store provisions plus the reserve fuel. A maximum range descent at IDLE (per item 10 of the mission rules) is performed from cruise conditions. The GW at start of descent is not known. An iteration is required to find the GW at start of descent. This iteration is simplified by the fact that the fuel amount consumed during the descent is small. The cruise altitude for the assumed GW at start of descent must first be obtained. Refer to OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE, Part 4. Now, refer to MAXIMUM RANGE DESCENT, Part 6, to determine fuel, range, and time. The descent from cruise altitude to sea level is shown in figure A9-5.

INBOUND CRUISE

The inbound cruise is a high altitude optimum cruise per item 9 of the mission rules. The integration of the inbound cruise must be performed in reverse order from GW at start of descent (i.e., the end of the inbound cruise) to a GW that provides a range that approximates that of the outbound cruise (i.e., recall the 1121 nm outbound cruise shown in figure A9-3). Cruise data for an aircraft loaded with (2) AIM-9 missiles plus (2) pylons is obtained. Refer to OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE, Part 4.

Figure A9-6 shows the calculations for the inbound cruise segment. A GW of 24,000 pounds results in a range of 1221 nm which is in excess of the 1121 nm required. The results of the inbound cruise and descent calculations are shown in figure A9-6.

INBOUND CLIMB

The inbound climb is a MIL climb from sea level to optimum cruise altitude. The mission prime objective is to begin and end the penetration 600 nm from base.

Descent Before Landing

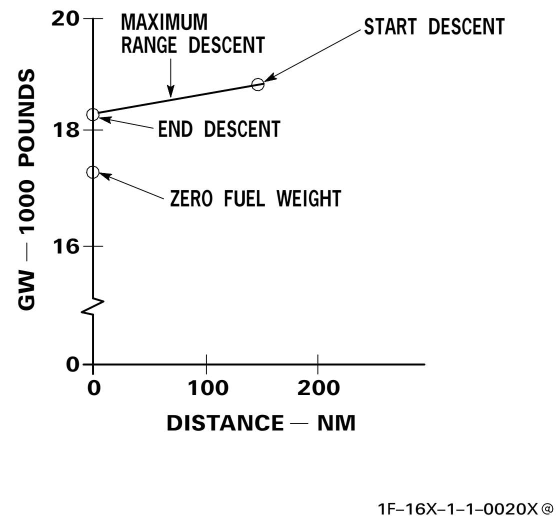


Figure A9-5.

The inbound climb must therefore begin 600 nm from base. Examination of the inbound cruise line, figure A9-7, reveals that the inbound climb must begin at a GW of approximately 21,000 pounds. Inbound climbs will be defined for several GW's along the inbound cruise line as well as 21,000 pounds. The exact GW associated with a start-of-climb range of 600 nm from base will be determined graphically on the mission wedge. MIL climb data is computed. Refer to MIL CLIMB, Part 3.

A tabulation of the inbound climb data and the results of several inbound climb computations are shown in figure A9-7.

The climb data is plotted on the wedge by finding the point at which the return cruise line crosses the end-of-climb GW (20,360 pounds at 430 nm in the example above) and adding the climb distance and fuel to that GW and distance. The start-of-climb point is located at 21,000 pounds and 487 nm. (Refer to figure A9-7.) After plotting each set of climb data in this manner, a climb line can be drawn as shown in figure A9-7 which will define the start of the return climb/cruise sequence for any desired distance from base. The inbound climb must begin at the GW where the climb line passes 600 nm. The GW at the start of the inbound climb (at 600 nm) is 21,460 pounds.

Inbound Cruise

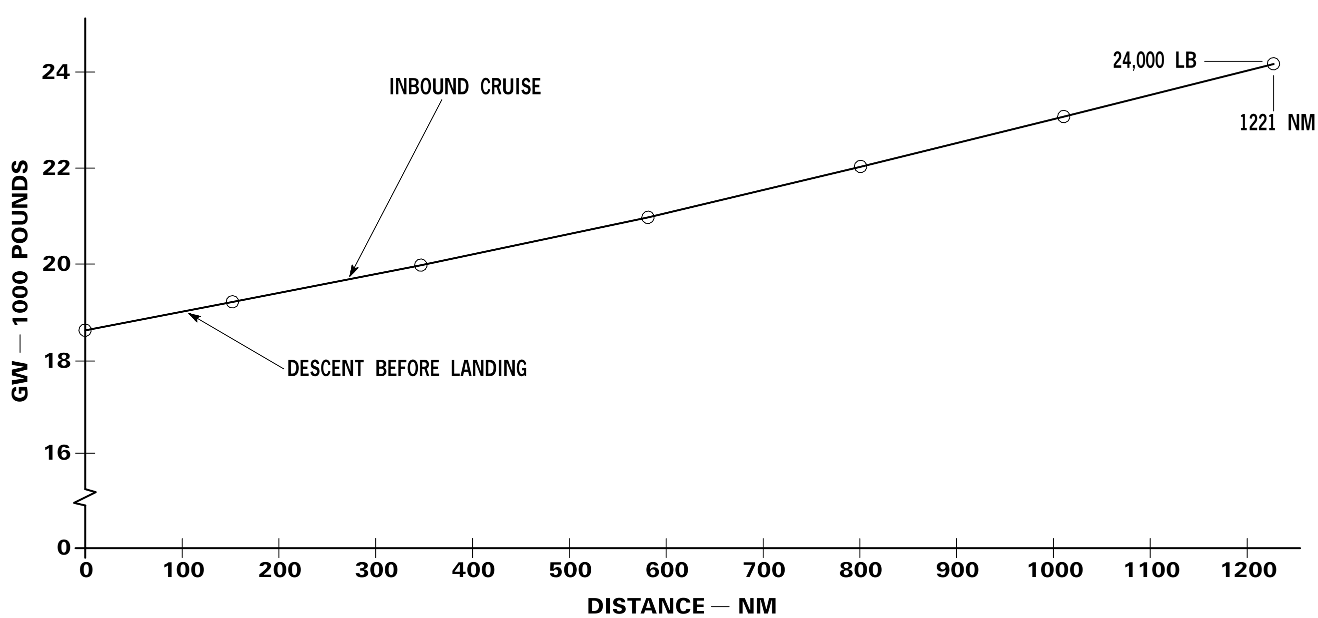
CONFIGURATION:

- **(2) AIM-9 MISSILES**
- **(2) PYLONS**
- **DRAG INDEX = 51**

CONDITIONS:

- **STANDARD DAY**
- **NO WIND**

MISSION PHASE	GW	Δ WEIGHT	AVERAGE GW	SPECIFIC RANGE	Δ DISTANCE	TOTAL DISTANCE
	LB ①	LB ②	LB ③	NM/LB ④	NM ⑤ ② x ④	NM ⑥ Σ ⑤
LANDING	18,682					0
DESCENT		490	—	—	140	
	19,172					140
		828	19,586	0.245	203	
CRUISE	20,000					343
		1000	20,500	0.234	234	
CRUISE	21,000					577
		1000	21,500	0.224	224	
CRUISE	22,000					801
		1000	22,500	0.215	215	
CRUISE	23,000					1016
		1000	23,500	0.205	205	
CRUISE	24,000					1221



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Figure A9-6.

HI-LO-LO-HI Mission Climb

CONFIGURATION:
- (2) AIM-9 MISSILES
- (2) PYLONS
- DRAG INDEX = 51

CONDITIONS:
- STANDARD DAY
- MIL

INITIAL GW	CLIMB FUEL	CLIMB DISTANCE	CLIMB TIME	FINAL ALTITUDE	FINAL GW	DISTANCE ON CRUISE LINE	DISTANCE AT START OF CLIMB
LB ①	LB ②	NM ③	MIN ④	FT ⑤	LB ⑥ ① − ②	NM ⑦	NM ⑧ ③ + ⑦
20,000	620	57	6.5	44,900	19,380	185	242
21,000	640	57	6.5	43,900	20,360	430	487
22,000	650	57	6.5	42,800	21,350	663	720
23,000	670	57	6.5	41,900	22,330	875	932

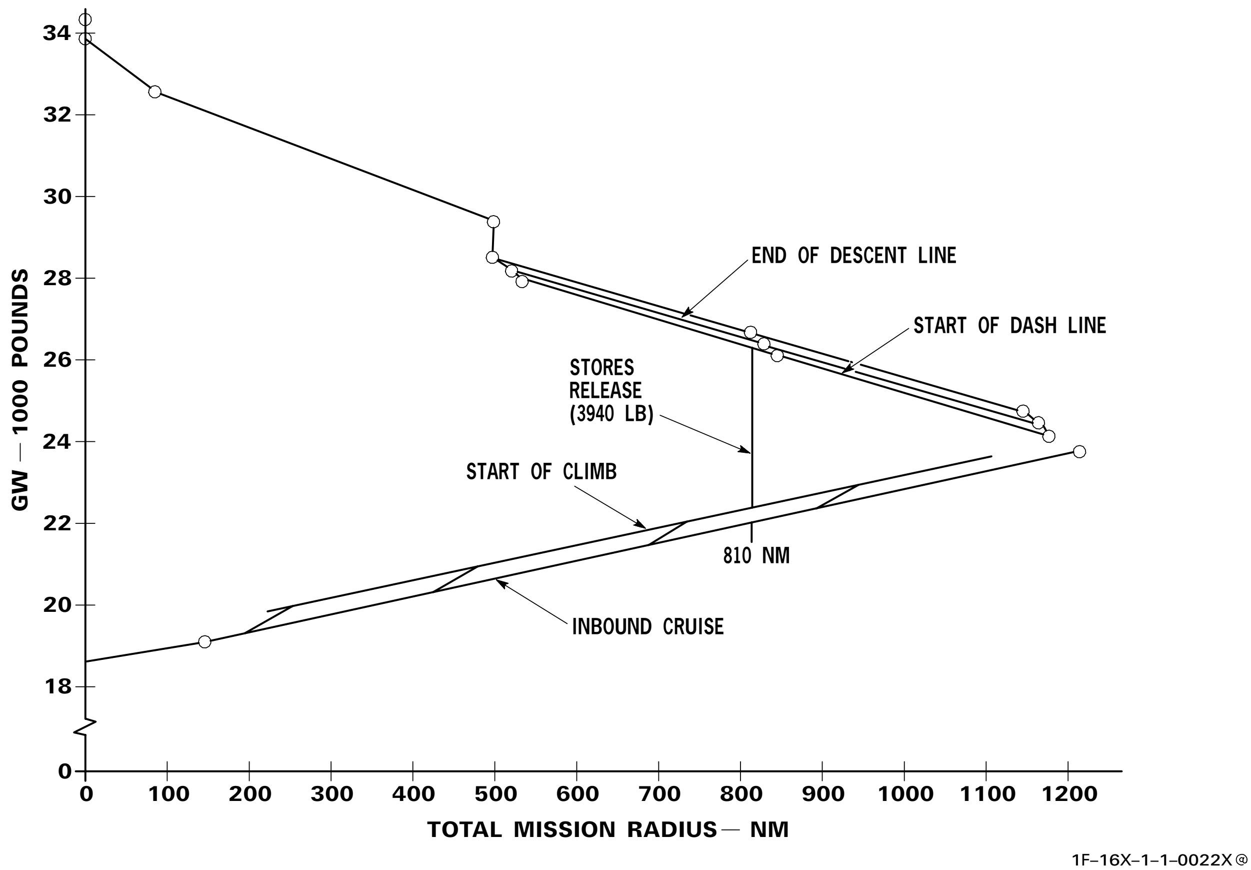


Figure A9-7.

The mission wedge, figure A9-7, is now completed except for the sea level penetration and stores release segments represented by items 5, 6, and 7 of the mission rules. Notice that if no zone radius were required (account for only the stores release: 3940 pounds), the total mission radius would be 810 nm. This radius represents the maximum radius capability of the aircraft for the example mission with zero dash radius and the payload/tank combination specified. It follows, then, that the total mission radius of the aircraft with a finite combat zone radius is less than 810 nm. The larger the combat zone radius desired, the smaller the total mission radius. This result leads to a tradeoff between combat zone radius (CZR) and total mission radius (TMR). To define a CZR-TMR tradeoff requires the mission planner to define the total mission radius for several distances to the start of the combat zone (i.e., entry point distance from base).

OUTBOUND DASH

Because the mission plan evaluates the tradeoff between entry point distance and penetration distance, dash performance should be evaluated from a minimum of three entry points. One of these points, zero penetration distance (zero CZR), is an entry point 810 nm from base (810 nm TMR). Another entry point at the end of acceleration is at 554 nm from base (from figure A9-4). The third entry point should be one about midway between the two extremes, about 600 nm from base. The dash data may be computed for the 554 nm entry using the cruise charts of Part 4. The dash data for the 600 nm entry is computed graphically using the mission wedge.

The outbound sea level dash at 0.85 mach is analyzed first. The sea level dash begins 554 nm from base at a GW of 27,903 pounds (immediately after the last external fuel tank drop and the descent and acceleration to dash conditions). The stores loading during outbound dash is (2) AIM-9 missiles plus (2) MK 84 bombs. The mechanics for obtaining dash (constant altitude and KTAS) data is different than for an optimum mach/altitude cruise. The fuel flow for each average GW, drag index, and true airspeed must be obtained. Refer to SUBSONIC CRUISE TABLES, Part 4. A tabulation of the sea level 0.85 mach outbound dash integration and the graphical results are shown in figure A9-8.

INBOUND CRUISE AT OPTIMUM KTAS

The inbound sea level cruise at optimum KTAS requires that the optimum KTAS and fuel flow be defined for each average GW. Refer to SUBSONIC CRUISE TABLES, Part 4.

Figure A9-9 shows the inbound sea level cruise integration in tabular form. The inbound cruise is integrated in reverse order from a GW of 21,290 pounds. This GW is read from the line representing start at the inbound climb (figure A9-7) at a distance of 554 nm from base (554 nm is the distance at which penetration began).

The procedure for the integration of the inbound cruise, shown in figure A9-9, is discussed below for 22,500 pounds average GW or (2) AIM-9 missiles plus (2) pylons.

This procedure is repeated for the other average GW as shown in figure A9-9. The resulting inbound sea level cruise data is then plotted on the mission wedge. The completed mission wedge is shown in figure A9-10.

COMBAT ZONE RADIUS – TOTAL MISSION RADIUS DEFINITION

The mission wedge of figure A9-10 includes the stores release ((2) MK 84 bombs = 3940 pounds) over the target. For a sea level zone beginning 554 nm from base, the total mission radius is 657 nm. The combat zone radius is 657 – 554 = 103 nm. The entry point/TMR trade plot is shown in figure A9-11. Figure A9-11 was constructed using TMR and CZR data based on the entry points at 554, 600, and 810 nm. Figure A9-11 is used to define penetration radius for any entry point between 554 and 810 nm with no further mission planning needed. Total mission radius for the 600 nm entry can be read from figure A9-11 as 688, and combat zone radius is 688 – 600 = 88 nm. The complete mission planning data for the example Hi-Lo-Lo-Hi radius strike mission is tabulated in figure A9-12 for the 600 nm entry point.

TOTAL MISSION AND CRUISE PHASE TIME

The total mission time for the example Hi-Lo-Lo-Hi radius mission with a sea level penetration beginning 600 nm from base is shown in figure A9-12. Average cruise/dash speeds are used to simplify the calculations. Fuel remaining versus time for the sea level zone beginning 600 nm from base is shown in figure A9-13.

Outbound Dash

CONFIGURATION:
- (2) AIM-9 MISSILES
- (2) MK 84 BOMBS
- DRAG INDEX = 72

CONDITIONS:
- STANDARD DAY
- SEA LEVEL
- MACH = 0.85

GW	Δ WEIGHT	AVERAGE GW	TRUE AIRSPEED	FUEL FLOW	Δ TIME	Δ DISTANCE	TOTAL DISTANCE
LB ①	LB ②	LB ③	KNOTS ④	LB/HR ⑤	HRS ⑥ ②/⑤	NM ⑦ ④ x ⑥	NM ⑧ Σ ⑦
27,903							554
	903	27,452	562	8750	0.103	58	
27,000							612
	1000	26,500	562	8920	0.112	63	
26,000							675
	1000	25,500	562	8920	0.112	63	
25,000							738
	1000	24,500	562	8920	0.112	63	
24,000							801

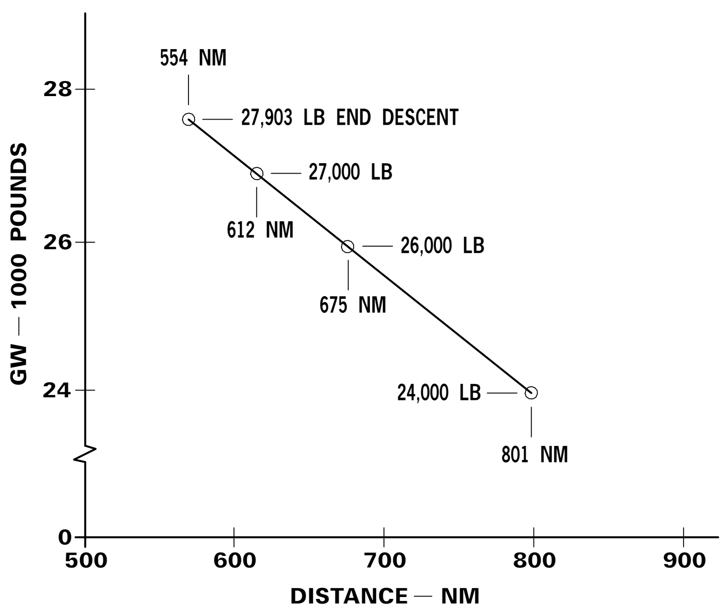


Figure A9-8.

Inbound Dash

CONFIGURATION:

- **(2) AIM-9 MISSILES**
- **(2) PYLONS**
- **DRAG INDEX = 51**

CONDITIONS:

- **STANDARD DAY**
- **SEA LEVEL**
- **OPTIMUM KTAS**

GW	Δ WEIGHT	AVERAGE GW	OPTIMUM TRUE AIRSPEED	FUEL FLOW	Δ DISTANCE	TOTAL DISTANCE
LB ①	LB ②	LB ③	KNOTS ④	LB/HR ⑤	NM ⑥ (② x ④) / ⑤	NM ⑦ Σ⑥
*21,290						554
	710	21,645	286	2820	72	
22,000						626
	1000	22,500	292	2940	99	
23,000						725
	1000	23,500	298	3100	96	
24,000						821

* READ FROM START-OF-CLIMB LINE AT 554 NM. REFER TO FIGURE BELOW.

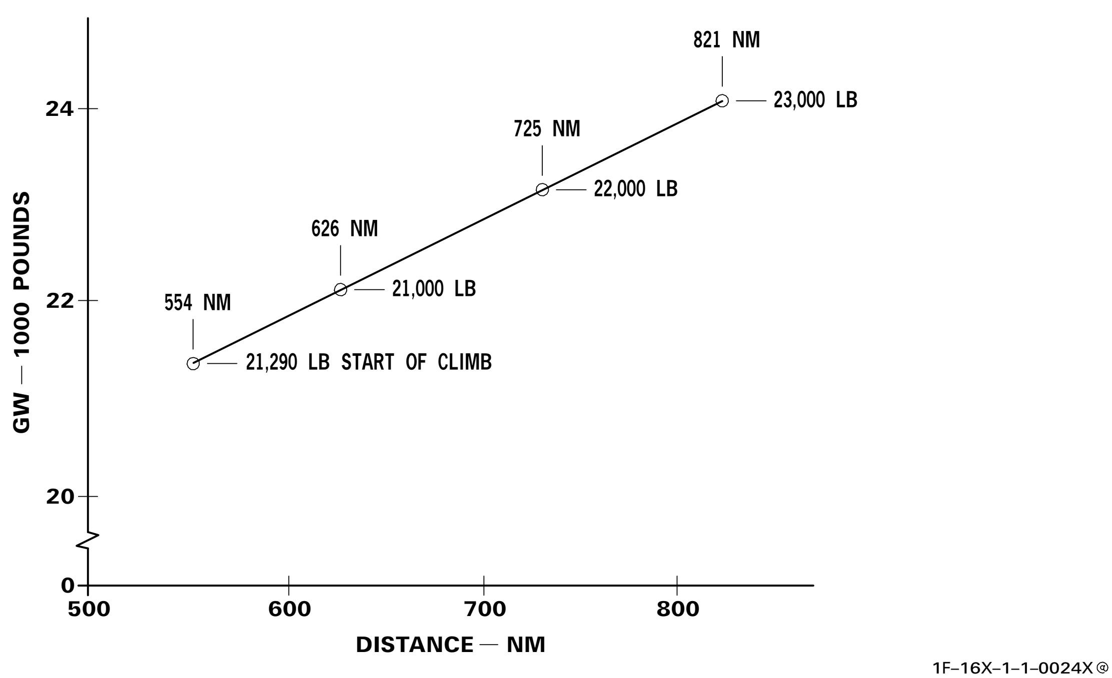


Figure A9-9.

HI-LO-LO-HI Typical Mission Wedge

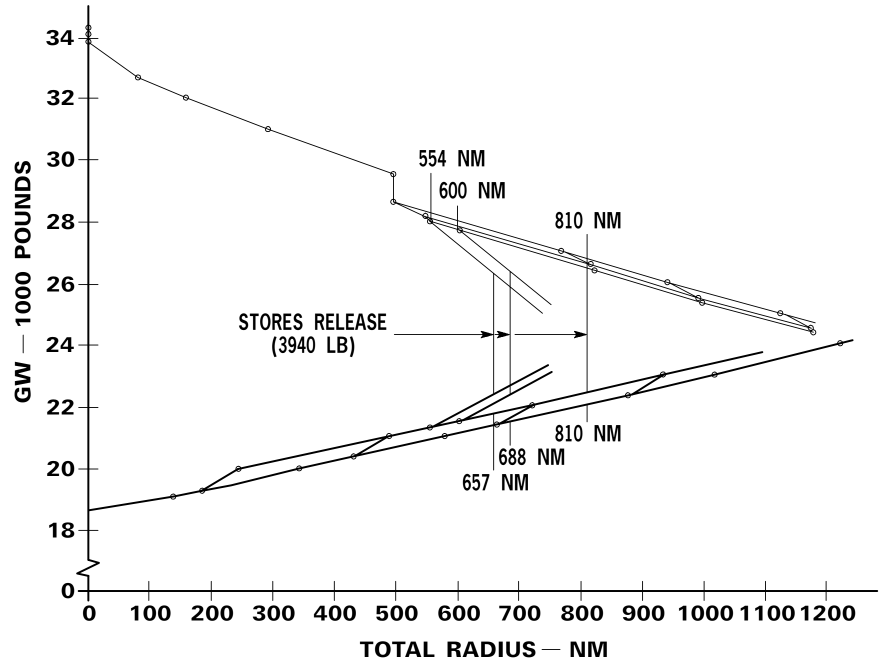


Figure A9-10.

HI-LO-LO-HI Mission Radius/Entry Point

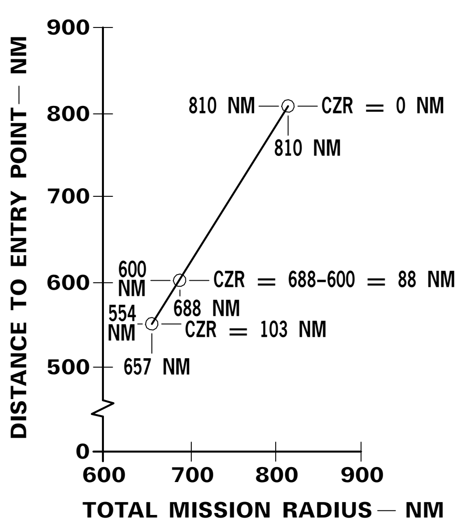


Figure A9-11.

HI-LO-LO-HI Mission Planning

CONFIGURATION:

- **(2) AIM-9 MISSILES**
- **370-GALLON FUEL TANKS**
- **(2) MK 84 BOMBS**
- **DRAG INDEX = 136**

CONDITIONS:

- **STANDARD DAY**
- **NO WIND**

MISSION PHASE	GW	FUEL REMAINING	ALTITUDE	MACH	Δ TIME	TOTAL TIME	Δ DISTANCE	TOTAL DISTANCE	DRAG INDEX
	LB	LB	FT		MIN	MIN	NM	NM	
	34,304	11,782	0			0		0	
GROUND		(125)		0	5.0		0		136
	34,179	11,657	0			5.0		0	
TAKEOFF		(300)		0	2.1		0		136
	33,879	11,357	0	KIAS/M		7.1		0	
CLIMB		(1265)		385/0.83	10.5		82		136
	32,614	10,092	33,300			17.6		82	
CRUISE		(3120)		0.83	51.0		414		136
	29,494	6972	35,100			68.6		496	
EXTERNAL FUEL	(900)	(0)		0.83	0		0		72
TANK DROP	28,594	6972	37,000			68.6		496	
CRUISE		(294)		0.86	5.8		48		72
	28,300	6678	37,100			74.4		544	
DESCENT		(460)		300 KIAS	7.7		48		72
	27,840	6218	0			82.1		592	
ACCEL		(230)		0.45 → 0.85	1.0		8		72
	27,610	5988	0			83.1		600	
DASH		(1380)		0.85	9.4		88		72
	26,230	4608	0			92.5		688	
STORES RELEASE	(3940)	(0)		0.85	0		0		51
	22,290	4608	0			92.5		688	
CRUISE		(830)		≈0.49	16.3		−88		51
	21,460	3778	0	KIAS/M		108.8		600	
CLIMB		(620)		430/0.87	6.5		−57		51
	20,840	3158	43,700			115.3		543	
CRUISE		(1668)		0.87	48.5		−403		51
	19,172	1490	45,000			163.8		140	
DESCENT		(490)		204 KIAS	28.0		−140		51
LAND	18,682	1000	0			191.8		0	

NOTES:

- USE THE MISSION WEDGE TO COMPUTE DATA NOT SPECIFICALLY TABULATED.
- MINUS DISTANCES ARE INBOUND DATA; FUEL VALUES IN PARENTHESES ARE Δ FUEL FIGURES.

Figure A9-12.

Fuel Remaining

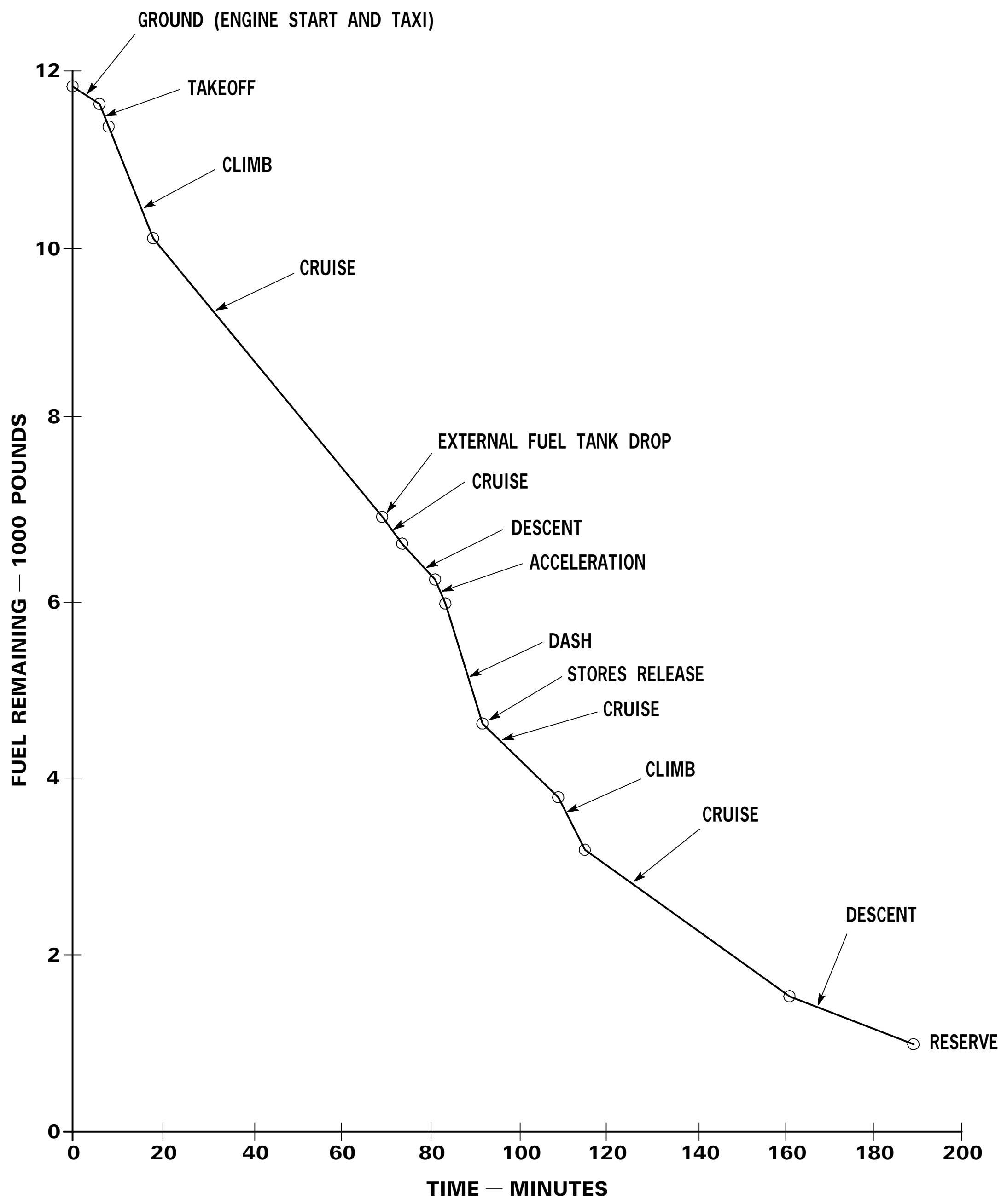


Figure A9-13.

APPENDIX B

F110-GE-129

PERFORMANCE DATA

PART 1 – INTRODUCTION

TABLE OF CONTENTS

LIST OF CHARTS

INTRODUCTION

The data presented in the charts is applicable to aircraft equipped with an F110-GE-129 engine. All performance data is based on use of all approved fuels. The data covers a flight spectrum ranging from sea level to approximately 60,000 feet and 0-2.0 mach. No conservative factors are used in any of the fuel consumption data presented herein. The appendix is divided into nine parts with performance data presented in an appropriate order for flight planning. The usage of the material requires that (except Part 9) all the text be presented first followed by all the charts. Because of the large number of stores and stores loading combinations the aircraft is capable of carrying, most charts are presented in a drag index format. All charts are based on F-16 flight test data, except the Refusal Speed charts in Part 2 and all charts in Part 7. These exceptions are based on predicted brake performance.

NOTE

Limiting conditions relative to altitude, airspeed, stores, gross weight, etc., are presented in Section V and should be checked prior to selecting mission conditions. Some charts may present data for more than permissible maximun weight per Section V. Such weight presentation does not have precedence over the limits of Section V. All data is based on the (1962) U.S. standard atmosphere and the (1966) U.S. standard atmosphere supplements. Pressure altitude and true mach are used for all data unless specified otherwise.

DRAG INDEX AND CONFIGURATION WEIGHT

Drag index is a numerical factor which provides a means for quantifying the effects on aircraft performance of adding stores to the basic aircraft. The drag index system provides accurate corrections for store effects at all subsonic speeds (less than 1.0 mach). At supersonic speeds (greater than 1.0 mach), the size and shape of the store(s) affect drag to a significant degree, and a single value of drag index can no longer exactly represent all stores and combinations at these speeds. Therefore, it should be noted that actual supersonic performance may vary from that predicted by the performance charts.

Configuration weight is intended to facilitate mission planning by precomputing the weight of a configuration which is to be added to the aircraft operating weight to obtain aircraft start engine weight. Configuration weight is the weight of the complete configuration which is uploaded to the basic aircraft. The configuration weight includes the weight of all the stores (missiles, bombs, pods, etc.), suspension equipment, full external fuel tanks (if used), and ECM pod (if used).

The drag index and configuration weight of authorized takeoff store loadings are presented in T.O. GR1F-16CJ-1-2, STORES LIMITATIONS.

The drag indexes and weights of specific stores and suspension equipment items are given in figure B1-1. If the drag index and configuration weight for a specific loading are not presented in T.O. GR1F-16CJ-1-2, STORES LIMITATIONS, Section V (i.e., normal downloads), figure B1-1 may be used to determine drag index and configuration weight.

NOTE

- The drag index for a specific loading accounts for the combined effects of the stores on drag and therefore may vary slightly from the drag index computed using figure B1-1.
- Configuration weight for a specific loading may vary slightly from the weight computed using figure B1-1 due to rounding.

Aircraft start engine weight is determined by adding aircraft operating weight, internal usable fuel, and, if installed, ammunition, chaff/flares, and configuration weight. All these weights are given in figure B1-1.

The aircraft operating weight given is an approximate value and includes pilot (D 2), oil, oxygen, unusable fuel, and tip missile launchers. For weight and balance information, refer to the individual aircraft Form F (DD Form 365-4) and the Weight and Balance Handbook. An example of the determination of the drag index, configuration weight, and aircraft start engine weight is provided in the sample problem which follows.

REFER TO FIGURE B1-1.

Assume a loading of four AIM-9L missiles on LAU-129/A launchers, two MK 84 bombs, and two 370-gallon fuel tanks. The drag index and configuration weight for this loading from T.O. GR1F-16CJ-1-2, STORES LIMITATIONS, are 142 and 11,520 pounds, respectively.

For this example, drag index and configuration weight are computed as follows:

STA 1 and 9 (2 AIM-9L missiles on LAU-129/A launchers)

The basic aircraft drag index includes tip missiles on 16S210 missile launchers. The drag index is 1 for a tip missile on a LAU-129/A missile launcher and the weight of an AIM-9L is 195 pounds.

For two AIM-9L's on LAU-129/A launchers:

- Drag index = 2 × 1 = 2
- Weight = 2 × 195 = 390 pounds

STA 2 and 8 (AIM-9L missiles on LAU-129/A launchers + adapters)

One AIM-9L has a drag index of 5 and weighs 195 pounds. The drag index of an LAU-129/A launcher with adapter is 6 and the weight is 113 pounds. Since AIM-9L's are carried at stations 2 and 8, multiply each drag index and weight by 2 and sum the results.

For two AIM-9L's and LAU-129/A launchers with adapters:

- Drag index = (2 × 5) + (2 × 6) = 22
- Weight = (2 × 195) + (2 × 113) = 616 pounds

STA 3 and 7 (MK 84 on wing weapon pylon)

The drag index of one MK 84 bomb is 9 and the bomb weight is 1970 pounds. The drag index of a pylon with MAU-12C/A, D/A rack at station 3 or 7 is 15 and the weight is 289 pounds. Since two MK 84 bombs are to be carried on pylons, multiply each drag index and weight by 2 and sum the results.

For two MK 84's on wing weapon pylons:

- Drag index = (2 × 9) + (2 × 15) = 48
- Weight = (2 × 1970) + (2 × 289) = 4518 pounds

STA 4 and 6 (370-gallon fuel tanks)

In a similar manner, find that the drag index of one 370-gallon fuel tank, mounted on station 4 or 6 with single stores at 3 or 7, is 35 and its weight is 490 pounds (empty) or 3006 pounds (full). Note that no rack is required to install the tank on the wing.

For two tanks:

- Drag index = 2 × 35 = 70
- Weight = 2 × 3006 = 6012 pounds (full)

The total store loading drag index and configuration weight can now be determined by summing the individual store station values.

	Drag Index	Configuration Weight
• STA 1 and 9	2	390
• STA 2 and 8	22	616
• STA 3 and 7	48	4,518
• STA 4 and 6	70	6,012
Total	142	11,536 pounds

Using these values plus the basic aircraft drag index and weights, the drag index and start engine weight can be determined:

Drag Index

• Basic aircraft drag index	= 4	C
• Store loading drag index	= 142	
Drag index total	= 146	

Start Engine Weight

• Aircraft operating weight	= 19,261	C
• Internal usable fuel (JP-8)	= 7,162	C
• Ammunition (full drum)	= 287	
• Chaff/flares (not loaded)	= 0	
• Configuration weight	= 11,536	
Total start engine weight	= 38,246 pounds	

NOTE

Assumed values for basic aircraft operating weight and drag index are used in the sample problems throughout this appendix in order to eliminate reworking the problems whenever the basic operating weight or drag index changes due to modifications. The sample problems are aids in using the appendix and are not necessarily applicable to specific configurations.

POSITION ERROR CORRECTION

A single nose-mounted pitot-static probe supplies static and total pressure information to the CADC, altimeter, and airspeed indicator. The CADC computes calibrated airspeed, true airspeed, true mach, and calibrated altitude and provides the required signals to drive the airspeed and altitude indications on the HUD.

The CADC provides corrected (calibrated) altitude signals to the altimeter when the altimeter is in ELECT. When the altimeter is in PNEU, it displays indicated (not corrected for position error) altitude. The airspeed indicator always displays indicated airspeed and mach number. Position error corrections are shown in figure B1-2.

REFER TO FIGURE B1-2.

Enter Position Error Correction – Airspeed and Altitude chart with desired calibrated airspeed (A), proceed vertically to desired pressure altitude lines (B), then proceed horizontally to read altitude correction (C) and airspeed correction (D). Subtract the corrections from the desired conditions to obtain indication reading. Mach position error corrections may be found in a similar manner.

SAMPLE PROBLEM.

A.	KCAS	=	380
B.	Pressure altitude	=	30,000 feet
C.	Altitude correction	=	175 feet
•	Altimeter reading	=	30,000 – 175 = 29,825 feet
D.	Airspeed correction	=	1.5 knots
•	Airspeed indicator reading	=	380 – 1.5 = 378.5 knots

AIRSPEED CONVERSION

Curves shown in figure B1-3 are presented as an aid for conversion between calibrated airspeed, true airspeed, and mach number. Fahrenheit/Centigrade temperature conversion is also shown.

REFER TO FIGURE B1-3.

To obtain mach numbers, enter Airspeed Conversion chart with calibrated airspeed (A). Proceed vertically to altitude (B) and horizontally left to read mach number (C).

To obtain KTAS, enter Airspeed Conversion chart with calibrated airspeed (A). Proceed vertically to altitude (B), then horizontally left to temperature (D), and then vertically upward or downward, as applicable, to read KTAS (E).

SAMPLE PROBLEM.

A.	KCAS	=	225
B.	Altitude	=	40,000 feet
C.	Mach number	=	0.75
D.	Temperature	=	–40°C
E.	KTAS	=	446

COMPRESSIBILITY CORRECTION TO AIRSPEED

Figure B1-4 is provided as an aid to converting calibrated airspeed into equivalent airspeed.

REFER TO FIGURE B1-4.

Enter Compressibility Correction to Airspeed chart with calibrated airspeed (A), proceed vertically upward to altitude (B) and proceed horizontally left to read compressibility correction (C). Note that the chart can also be entered at (B) with mach and altitude. Subtract the compressibility correction from calibrated airspeed to obtain equivalent airspeed.

SAMPLE PROBLEM.

A.	KCAS	=	300
B.	Altitude	=	30,000 feet
C.	Compressibility correction	=	15 knots
•	KEAS	=	300 – 15 = 285

MISCELLANEOUS CHARTS

STANDARD ATMOSPHERE, figure B1-5, and TEMPERATURE CORRECTION FOR COMPRESSIBILITY, figure B1-6, are included for information. No samples are provided for these charts since they are self-explanatory.

ANGLE OF ATTACK (AOA)

AOA data is provided in figure B1-7 for information. AOA data for altitudes from sea level to 60,000 feet and from 0.3-1.2 mach is shown.

REFER TO FIGURE B1-7.

Enter AOA chart with GW (A), proceed horizontally to altitude (B), vertically down to mach number (C), and horizontally left to read AOA (D).

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Altitude	=	30,000 feet
C.	Mach number	=	0.80
D.	AOA	=	4.6 degrees

AVAILABLE LOAD FACTOR

Load factors available with the LG handle in UP and the STORES CONFIG switch in CAT I or CAT III are presented in figure B1-8. The load factor data is presented as a function of altitude, mach, and GW and is valid for all temperatures, throttle settings, and DI. The load factor value obtained from this chart is based solely on the aerodynamic characteristics of the aircraft. Sustained load factor capabilities are presented in Part 8.

REFER TO FIGURE B1-8.

Determine either CAT I or CAT III loading. Enter Available Load Factor chart with mach (A). Proceed vertically to altitude (B) and then horizontally left to the GW baseline and parallel guidelines to GW (C). Finally, proceed left to read available load factor (D).

SAMPLE PROBLEMS (CAT I).

A.	Mach	=	0.6
B.	Altitude	=	20,000 feet
•	KCAS	=	275
C.	GW	=	23,000 pounds
D.	Available load factor	=	4.7g

A.	Mach	=	1.4
B.	Altitude	=	10,000 feet
•	KCAS	=	794 (obtained from figure B1-3)
C.	GW	=	28,000 pounds
D.	Available load factor	=	9.0g

SAMPLE PROBLEMS (CAT III).

A.	Mach	=	1.6
B.	Altitude	=	35,000 feet
•	KCAS	=	584
C.	GW	=	33,000 pounds
D.	Available load factor	=	5.5g

A.	Mach	=	0.5
B.	Altitude	=	30,000 feet
•	KCAS	=	184
C.	GW	=	28,000 pounds
D.	Available load factor	=	1.3g

A.	Mach	=	0.8
B.	Altitude	=	Sea level
•	KCAS	=	529 (obtained from figure B1-3)
C.	GW	=	28,000 pounds
D.	Available load factor	=	9.0g

TURN CONVERSION

Figure B1-9 is provided as an aid for conversion between load factor, turn rate, turn radius, KTAS, and bank angle.

GROUND VEHICLE FRICTION READING-TO-RCR CONVERSION

Figure B1-10 is provided as an aid for conversion between ground vehicle friction reading and RCR/ braking action level.

Drag Indexes and Weights — Basic Aircraft

DATA BASIS FLIGHT TEST

AIRCRAFT OPERATING WEIGHT — LB*	F-16C**	F-16D**
BASIC AIRCRAFT	20,000	20,600

*INCLUDES PILOT (D 2), OIL, OXYGEN, UNUSABLE FUEL, AND TIP MISSILE LAUNCHERS.
**ALL WEIGHTS ARE APPROXIMATE. REFER TO INDIVIDUAL AIRCRAFT WEIGHT AND BALANCE HANDBOOK FOR ACTUAL AIRCRAFT WEIGHT.

DRAG INDEX (SUBSONIC/SUPERSONIC)*	F-16C	F-16D
BASIC AIRCRAFT	4/2	9/2

*AIM-9L TIP MISSILES ON 16S210 LAUNCHERS INCLUDED.

EXPENDABLES WEIGHT — LB	F-16C	F-16D
INTERNAL USABLE FUEL (JP-8)	7162	5920
EXTERNAL USABLE FUEL (JP-8):		
• 300-GALLON TANK	2040	2040
• 370-GALLON TANK	2516	2516
• 600-GALLON TANK	3961	3961
GUN AMMO:		
• FULL DRUM (511 ROUNDS)	287	287
• FIRED OUT (RETAINED AMMO/CASINGS, 511 ROUNDS)	130	130

Figure B1-1. (Sheet 1)

Drag Indexes and Weights — Suspension Equipment

DATA BASIS FLIGHT TEST

SUSPENSION EQUIPMENT	STATION	JETTISON WEIGHT LB	TOTAL WEIGHT LB	DRAG INDEX
ADAPTER (16S301)	2,3,7, OR 8	0	26	2
AIM-9 LAUNCHER (16S210)	1 OR 9	0	72	0
AIM-9 LAUNCHER (16S210) + ADAPTER (16S301)	2,3,7, OR 8	0	98	6
CENTERLINE PYLON* (16S951)	5	0	177	7
NONJETTISON (NJETT) FUEL PYLON*	4 OR 6	0	295	8
LANTIRN TARGETING POD PYLON (16S1150)	5R	0	42	3
LAU-88/A + WEAPON PYLON*	3 OR 7	468	749	29
LAU-88 A/A + WEAPON PYLON*	3 OR 7	476	757	24
LAU-117/A, A(V)1/A, A(V)3/A + WEAPON PYLON*	3 OR 7	130	411	20
LAU-118(V)4/A + WEAPON PYLON*	3 OR 7	120	401	17
LAU-129/A LAUNCHER	1 OR 9	0	87	1
LAU-129/A LAUNCHER + ADAPTER (16S301)	2,3,7, OR 8	0	113	6
TER (16S1750) + WEAPON PYLON*	3,4,6, OR 7	117 (123**)	398 (404**)	24
TER (66J45517) + WEAPON PYLON*	3,4,6, OR 7	93 (99**)	374 (380**)	24
WEAPON PYLON* (16S1700)	3,4,6, OR 7	0	281	15

*INCLUDES MAU-12C/A, D/A.
**WEIGHT IF BDU-33 ADAPTERS ARE INSTALLED.

Figure B1-1. (Sheet 2)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
A/A 37U-36:				
TARGET STOWED	3 OR 7	PYLON	903	39
TARGET DEPLOYED	3 OR 7	PYLON	–	204
TOW REEL ONLY (TARGET/CABLE RELEASED)	3 OR 7	PYLON	495	29
AGM-65A, B	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1/A, A(V)3/A	464	13/8
AGM-65D	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1/A, A(V)3/A	493	13/8
AGM-65G	3 OR 7	LAU-117/A, A(V)1/A, A(V)3/A	672	8
AGM-88B	3 OR 7	LAU-118(V)4/A	770	8
AIM-9P, P-1	1 OR 9	LAUNCHER	166	4*
AIM-9P-2, P-3, P-4, P-5, N, N-3	1 OR 9	LAUNCHER	178	4*
AIM-9L, M, S	1 OR 9	LAUNCHER	195	4*
AIM-9P, P-1	2,3,7, OR 8	LAUNCHER + ADAPTER	166	5
AIM-9P-2, P-3, P-4, P-5, N, N-3	2,3,7, OR 8	LAUNCHER + ADAPTER	178	5
AIM-9L, M, S	2,3,7, OR 8	LAUNCHER + ADAPTER	195	5
AIM-120B	1 OR 9	LAUNCHER	341	0
AIM-120B	2,3,7, OR 8	LAUNCHER + ADAPTER	341	4
AN/ASQ:				
-T-17 (P4A)	1 OR 9	LAUNCHER	122	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	122	3
-T-20 (P4AX)	1 OR 9	LAUNCHER	123	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	123	3
-T-25 (P4AM)	1 OR 9	LAUNCHER	125	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	125	3

*USED FOR REMOVING WINGTIP AIM-9 MISSILE SINCE BASIC AIRCRAFT CONFIGURATION INCLUDES AIM-9'S AT STATIONS 1 AND 9. USING DRAG INDEX ZERO GIVES SLIGHTLY CONSERVATIVE RESULTS WITHOUT TIP MISSILES.

**USED FOR REPLACING WINGTIP AIM-9 MISSILE. DRAG INDEX IS 2 LESS THAN AIM-9 MISSILE AT STATION 1 OR 9.

Figure B1-1. (Sheet 3)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
BDU-33B/B, D/B	3,4,6, OR 7	TER	24	1
BDU-50/B, A/B	3,4,6, OR 7	PYLON/TER	510	5/9
BL-755 MK 2	3,4,6, OR 7	PYLON/TER	610	19/23
BLU-107/B	3,4,6, OR 7	PYLON/TER	482	5/8
BLU-109/B	3 OR 7	PYLON	2020	12
CATM-88B (WITH WINGS AND FINS)	3 OR 7	LAU-118(V)4/A	795	8
CATM-88B (WITHOUT WINGS AND FINS)	3 OR 7	LAU-118(V)4/A	733	8
CATM-120A (107), B (106)	1 OR 9	LAUNCHER	345	0
CATM-120A (107), B (106)	2,3,7, OR 8	LAUNCHER + ADAPTER	345	4
CBU-52B/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	785	20/24
CBU-58/B, A/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	800	20/24
CBU-71/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	800	20/24
CBU-87/B (SUU-65/B)	3,4,6, OR 7	PYLON/TER	950	18/22
GBU-10/B, A/B, C/B, D/B, E/B, F/B	3,4,6, OR 7	PYLON	2052	15
GBU-10G/B, H/B, J/B	3,4,6, OR 7	PYLON	2135	17
GBU-12/B, A/B, B/B, C/B, D/B, E/B	3,4,6, OR 7	PYLON	611	7
GBU-12B/B, C/B, D/B, E/B	3 OR 7	TER	611	10
ITM-88B	3 OR 7	LAU-118(V)4/A	770	8
LANTIRN POD:				
NAVIGATION	5L	PYLON	429*	32*
TARGETING	5R	PYLON	553	19

*WITH PYLON.

Figure B1-1. (Sheet 4)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
LAU-3/A, B/A, C/A, D/A ROCKET LAUNCHER WITH:				
(19) M151	3,4,6, OR 7	PYLON/TER	496	14/20
(19) M156	3,4,6, OR 7	PYLON/TER	496	14/20
(19) MK 1	3,4,6, OR 7	PYLON/TER	418	14/20
(19) MK 5	3,4,6, OR 7	PYLON/TER	418	14/20
FIRED OUT (NO FWD FAIRING)	3,4,6, OR 7	PYLON/TER	76	26/39
EMPTY WITH FWD FAIRING	3,4,6, OR 7	PYLON/TER	78	14/20
LAU-68A/A, B/A ROCKET LAUNCHER WITH:				
(7) M151	3 OR 7	TER	215	9
(7) M156	3 OR 7	TER	215	9
(7) MK 1	3 OR 7	TER	194	9
(7) MK 5	3 OR 7	TER	194	9
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	67	17
EMPTY WITH FWD FAIRING	3 OR 7	TER	68	9
LAU-131/A ROCKET LAUNCHER-WITH:				
(7) M151	3 OR 7	TER	223	9
(7) M156	3 OR 7	TER	223	9
(7) MK 1	3 OR 7	TER	195	9
(7) MK 5	3 OR 7	TER	195	9
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	68	18
EMPTY WITH FWD FAIRING	3 OR 7	TER	69	9
LAU-5003/A ROCKET LAUNCHER-WITH:				
(19) CM-151 (CRV7)	3 OR 7	TER	530	20
(19) RA-79 (CRV7)	3 OR 7	TER	658	20
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	76	39
EMPTY WITH FWD FAIRING	3 OR 7	TER	78	20

Figure B1-1. (Sheet 5)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
M129E2	3,4,6, OR 7	PYLON	229	16
MK 20 MOD 3,4	3,4,6, OR 7	PYLON/TER	490	11/14
MK 82 AIR	3,4,6, OR 7	PYLON/TER	540	7/11
MK 82 LDGP	3,4,6, OR 7	PYLON/TER	510	5/9
MK 82 (SNAKEYE)	3,4,6, OR 7	PYLON/TER	550	7/11
MK 84 AIR	3,4,6, OR 7	PYLON	2010	10
MK 84 LDGP	3,4,6, OR 7	PYLON	1970	9
MXU-648A/A, C/A (TRAVEL POD) (MAX CARGO WT IS 300 LB)	3,4,5,6, OR 7	PYLON/TER	108 (EMPTY)	10/10
SUU-20A/A, B/A WITH:			(A/A) (B/A)	
(6) BDU-33B/B, D/B	3,4,6, OR 7	PYLON	474 420	14
(6) MK 106	3,4,6, OR 7	PYLON	360 306	14
(4) M151	3,4,6, OR 7	PYLON	414 360	14
(6) BDU-33B/B, D/B+(4) M151	3,4,6, OR 7	PYLON	558 504	14
(6) MK 106+(4) M151	3,4,6, OR 7	PYLON	444 390	14
EMPTY	3,4,6, OR 7	PYLON	330 276	12
SUU-5003A/A, B/A WITH:			(A/A) (B/A)	
(6) BDU-33B/B, D/B	3,4,6, OR 7	PYLON	583 546	14
(6) MK 106	3,4,6, OR 7	PYLON	469 432	14
(4) CM-151 (CRV7)	3,4,6, OR 7	PYLON	561 524	14
(6) BDU-33B/B, D/B+(4) CM-151	3,4,6, OR 7	PYLON	705 668	14
(6) MK 106+(4) CM-151	3,4,6, OR 7	PYLON	591 554	14
(4) RA-79T (RA-82) (CRV7)	3,4,6, OR 7	PYLON	547 510	14
EMPTY	3,4,6, OR 7	PYLON	439 402	12

Figure B1-1. (Sheet 6)

Drag Indexes and Weights — Individual Stores

DATA BASIS FLIGHT TEST

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
TGM-65A, B	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1A, A(V)3/A	447	13/8
TGM-65D, G	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1A, A(V)3/A	474	13/8
300-GALLON TANK (EMPTY/FULL):				
NO STORES AT 4 OR 6	5	PYLON	392*/2432	15
STORES AT 4 AND 6	5	PYLON	392*/2432	18
370-GALLON TANK (EMPTY/FULL):				
NO STORES AT 3 OR 7	4 OR 6	NONE	490*/3006	27
AIM-9'S AT 3 OR 7	4 OR 6	NONE	490*/3006	27
SINGLE RACKS OR STORES AT 3 OR 7	4 OR 6	NONE	490*/3006	35
MULTIPLE STORES AT 3 OR 7	4 OR 6	NONE	490*/3006	39
600-GALLON TANK (EMPTY/FULL):				
NO STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	20
AIM-9'S AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	20
SINGLE RACKS OR STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	30
MULTIPLE STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	399*/4360	32

300-/370-/600-GALLON TANK WEIGHTS BASED ON JP-8.
*INCLUDES UNUSABLE FUEL.

Figure B1-1. (Sheet 7)

Position Error Correction — Airspeed and Altitude

DATA BASIS FLIGHT TEST

NOTE: SUBTRACT CORRECTION FROM DESIRED CONDITION TO OBTAIN INDICATOR READING.

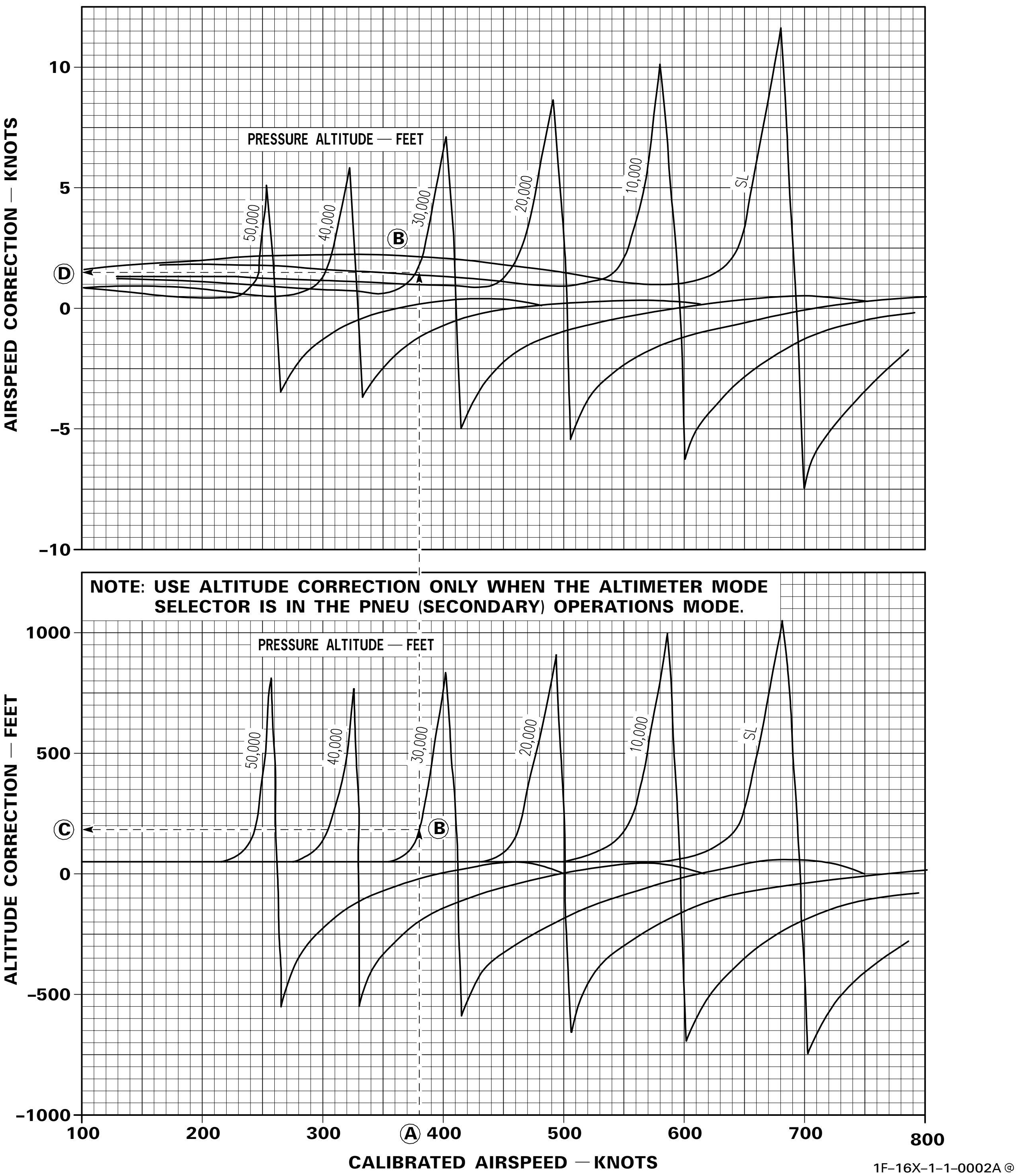


Figure B1-2. (Sheet 1)

Position Error Correction — Mach Number

DATA BASIS FLIGHT TEST

NOTE: SUBTRACT FROM THE TRUE MACH TO OBTAIN MACH INDICATOR READING.

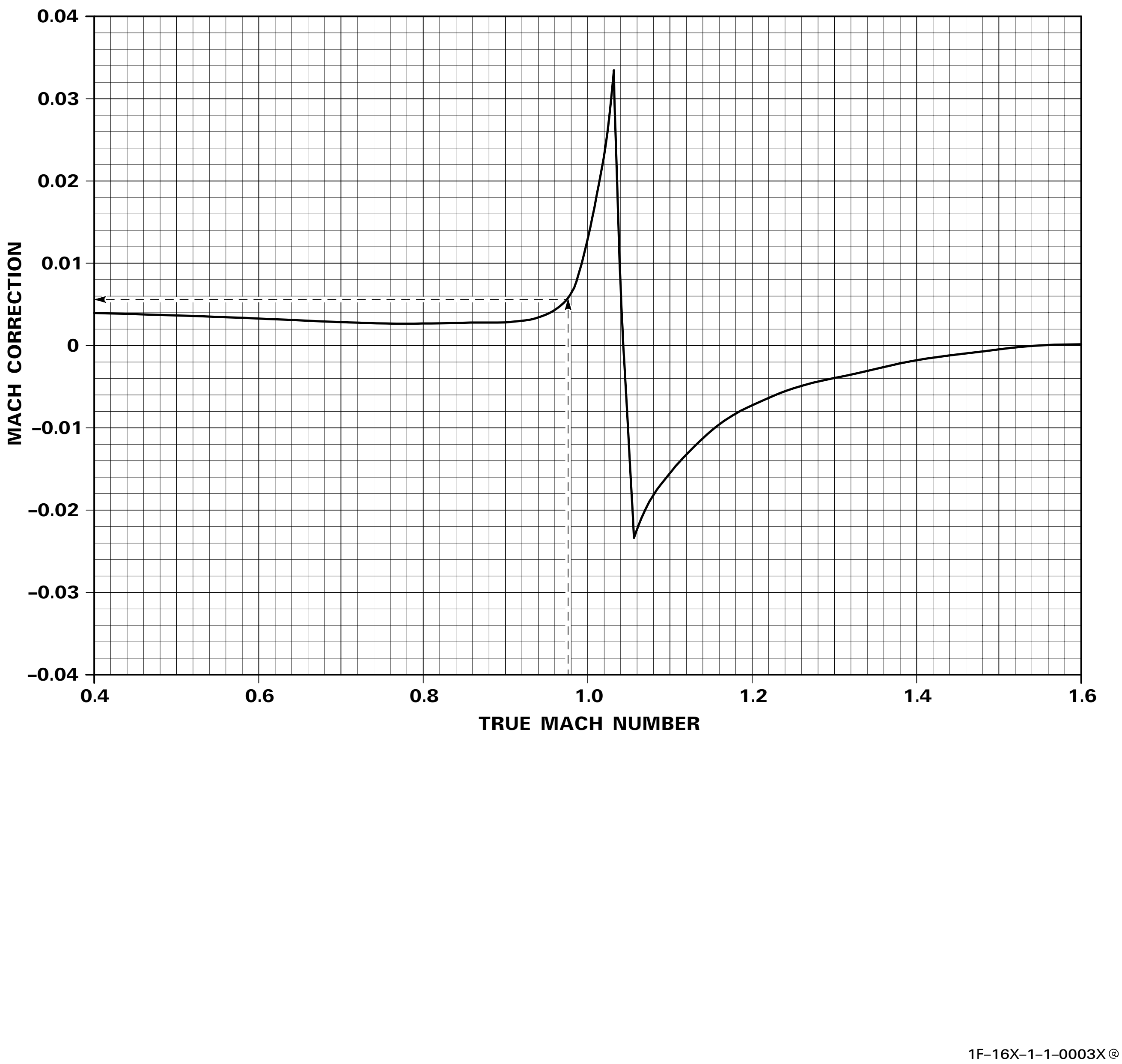
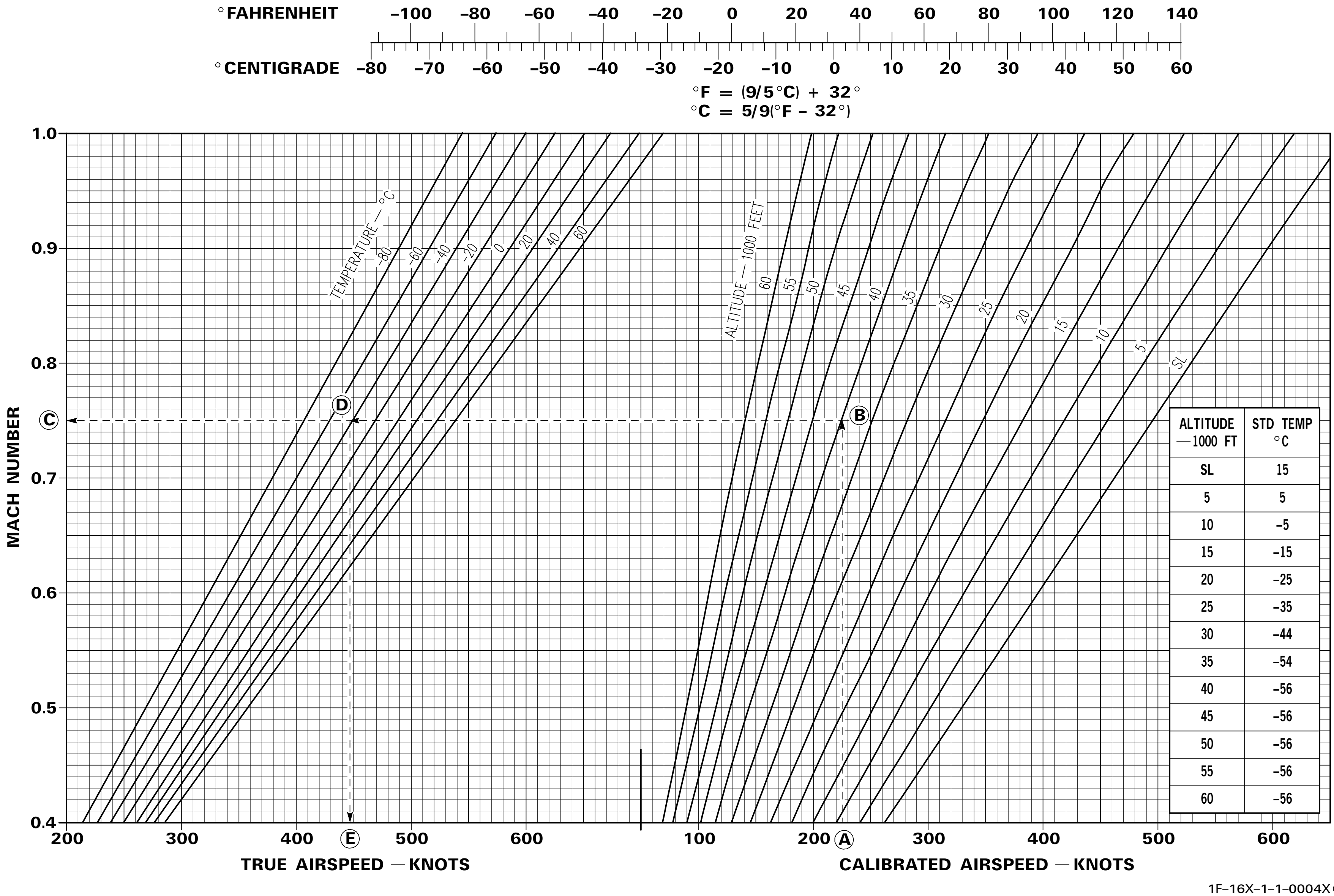


Figure B1-2. (Sheet 2)

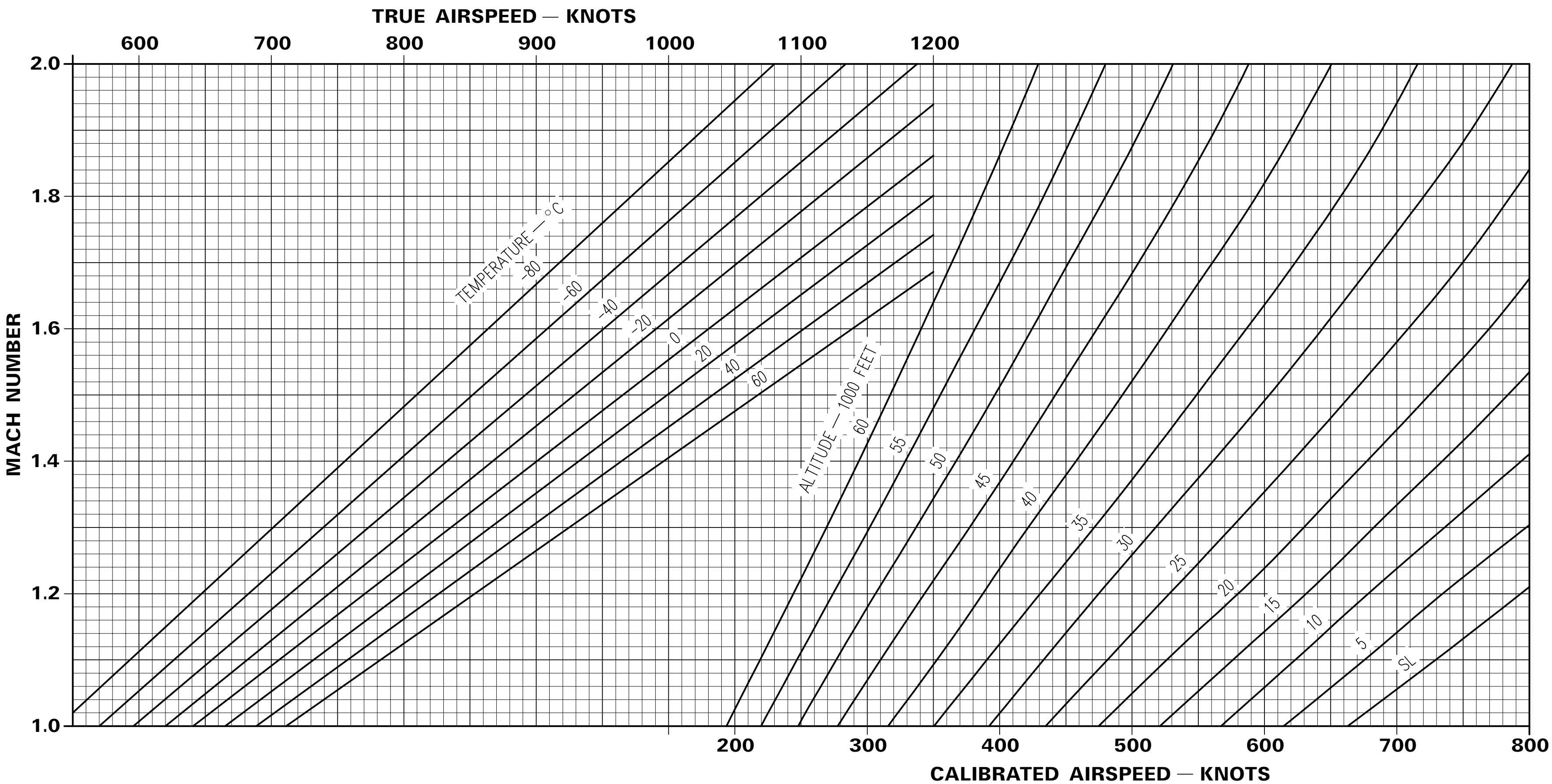
Airspeed Conversion



ALTITUDE —1000 FT	STD TEMP °C
SL	15
5	5
10	–5
15	–15
20	–25
25	–35
30	–44
35	–54
40	–56
45	–56
50	–56
55	–56
60	–56

Figure B1-3. (Sheet 1)

Airspeed Conversion

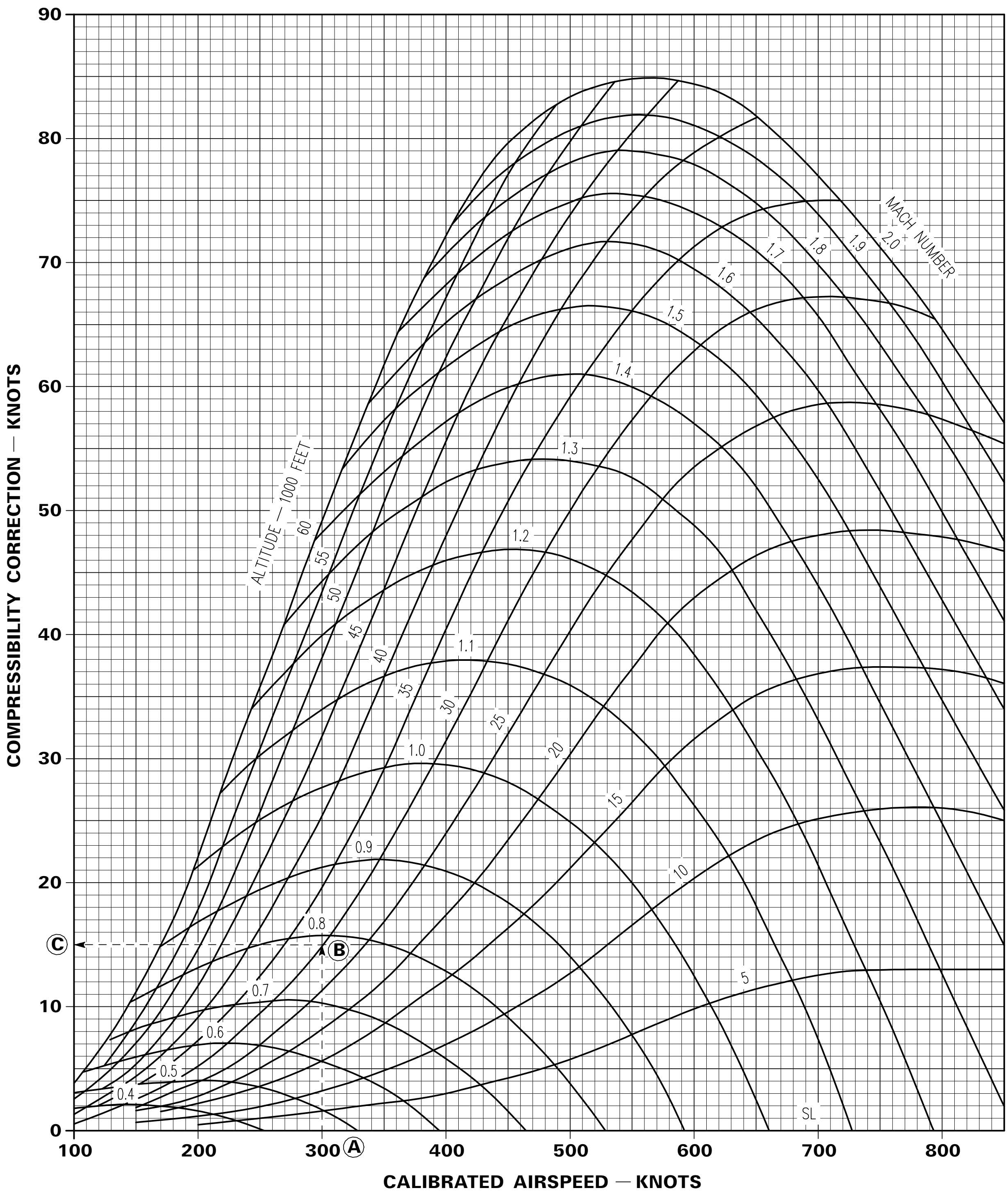


1F-16X-1-1-0005X@

Figure B1-3. (Sheet 2)

Compressibility Correction to Airspeed

NOTE: EQUIVALENT AIRSPEED = CALIBRATED AIRSPEED — CORRECTION.



1F-16X-1-1-0006X@

Figure B1-4.

Standard Atmosphere

DATA BASIS US STANDARD ATMOSPHERE, 1966

STANDARD SEA LEVEL AIR:

- **T = 59°F (15°C)**
- **P_o = 29.921 IN. OF HG**
- **W = 0.076475 LB/CU FT**
- **ρ_o = 0.0023769 SLUG/CU FT**
- **1 IN. OF HG = 70.726 LB/SQ FT**
- **1 IN. OF HG = 0.4912 LB/SQ IN.**
- **a_o = 1116.4 FT/SEC**
- **a_o = 661.48 KTS**

ALTITUDE FEET	DENSITY RATIO $\rho/\rho_o = \sigma$	$1/\sqrt{\sigma}$	AIR TEMPERATURE		SPEED OF SOUND KNOTS	PRESSURE	
			DEG F	DEG C		IN. OF HG	RATIO $P/P_o = \delta$
−2000	1.0598	0.9714	66.132	18.962	665.98	32.15	1.0745
−1000	1.0296	0.9855	62.566	16.981	663.73	31.02	1.0368
0	1.0000	1.0000	59.000	15.000	661.48	29.92	1.0000
1000	0.9711	1.0148	55.434	13.019	659.23	28.86	0.9644
2000	0.9428	1.0299	51.868	11.038	656.92	27.82	0.9298
3000	0.9151	1.0454	48.302	9.057	654.60	26.82	0.8962
4000	0.8881	1.0611	44.735	7.075	652.35	25.84	0.8637
5000	0.8617	1.0773	41.169	5.094	650.04	24.90	0.8320
6000	0.8359	1.0938	37.603	3.113	647.72	23.98	0.8014
7000	0.8106	1.1107	34.037	1.132	645.34	23.09	0.7716
8000	0.7860	1.1279	30.471	−0.849	643.02	22.22	0.7428
9000	0.7620	1.1456	26.905	−2.831	640.71	21.39	0.7148
10,000	0.7385	1.1637	23.338	−4.812	638.33	20.58	0.6877
11,000	0.7156	1.1822	19.772	−6.793	635.95	19.79	0.6614
12,000	0.6932	1.2011	16.206	−8.774	633.63	19.03	0.6360
13,000	0.6713	1.2205	12.640	−10.756	631.25	18.29	0.6113
14,000	0.6500	1.2403	9.074	−12.737	628.87	17.58	0.5875
15,000	0.6292	1.2606	5.508	−14.718	626.42	16.89	0.5643
16,000	0.6090	1.2815	1.941	−16.699	624.04	16.22	0.5420
17,000	0.5892	1.3028	−1.625	−18.681	621.59	15.57	0.5203
18,000	0.5699	1.3246	−5.191	−20.662	619.21	14.94	0.4994
19,000	0.5511	1.3470	−8.757	−22.643	616.76	14.34	0.4791
20,000	0.5328	1.3700	−12.323	−24.624	614.32	13.75	0.4595
21,000	0.5150	1.3935	−15.889	−26.605	611.87	13.18	0.4406
22,000	0.4976	1.4176	−19.456	−28.587	609.42	12.64	0.4223
23,000	0.4807	1.4424	−23.022	−30.568	606.91	12.11	0.4046
24,000	0.4642	1.4678	−26.588	−32.549	604.46	11.60	0.3876
25,000	0.4481	1.4938	−30.154	−34.530	601.95	11.10	0.3711
26,000	0.4325	1.5206	−33.720	−36.511	599.43	10.63	0.3552
27,000	0.4173	1.5480	−37.286	−38.492	596.92	10.17	0.3398
28,000	0.4025	1.5762	−40.852	−40.473	594.41	9.725	0.3250
29,000	0.3881	1.6052	−44.419	−42.455	591.89	9.297	0.3107

Figure B1-5. (Sheet 1)

Standard Atmosphere

DATA BASIS US STANDARD ATMOSPHERE, 1966

STANDARD SEA LEVEL AIR:

- **T = 59°F (15°C)**
- **P_o = 29.921 IN. OF HG**
- **W = 0.076475 LB/CU FT**
- **ρ_o = 0.0023769 SLUG/CU FT**
- **1 IN. OF HG = 70.726 LB/SQ FT**
- **1 IN. OF HG = 0.4912 LB/SQ IN.**
- **a_o = 1116.4 FT/SEC**
- **a_o = 661.48 KTS**

ALTITUDE FEET	DENSITY RATIO $\rho/\rho_o = \sigma$	$1/\sqrt{\sigma}$	AIR TEMPERATURE		SPEED OF SOUND KNOTS	PRESSURE	
			DEG F	DEG C		IN. OF HG	RATIO $P/P_o = \delta$
30,000	0.3741	1.6349	−47.985	−44.436	589.31	8.885	0.2970
31,000	0.3605	1.6654	−51.551	−46.417	586.80	8.488	0.2837
32,000	0.3473	1.6968	−55.117	−48.398	584.22	8.106	0.2709
33,000	0.3345	1.7291	−58.683	−50.379	581.64	7.737	0.2586
34,000	0.3220	1.7623	−62.249	−52.361	579.06	7.382	0.2467
35,000	0.3099	1.7964	−65.816	−54.342	576.41	7.041	0.2353
36,089*	0.2971	1.8347	−69.700	−56.500	573.57	6.683	0.2234
37,000	0.2844	1.8753	−69.700	−56.500	573.57	6.397	0.2138
38,000	0.2710	1.9209	−69.700	−56.500	573.57	6.097	0.2038
39,000	0.2583	1.9677	−69.700	−56.500	573.57	5.811	0.1942
40,000	0.2462	2.0155	−69.700	−56.500	573.57	5.538	0.1851
41,000	0.2346	2.0645	−69.700	−56.500	573.57	5.278	0.1764
42,000	0.2236	2.1148	−69.700	−56.500	573.57	5.030	0.1681
43,000	0.2131	2.1662	−69.700	−56.500	573.57	4.794	0.1602
44,000	0.2031	2.2189	−69.700	−56.500	573.57	4.569	0.1527
45,000	0.1936	2.2728	−69.700	−56.500	573.57	4.355	0.1455
46,000	0.1845	2.3281	−69.700	−56.500	573.57	4.151	0.1387
47,000	0.1758	2.3848	−69.700	−56.500	573.57	3.956	0.1322
48,000	0.1676	2.4428	−69.700	−56.500	573.57	3.770	0.1260
49,000	0.1597	2.5022	−69.700	−56.500	573.57	3.563	0.1201
50,000	0.1522	2.5630	−69.700	−56.500	573.57	3.425	0.1145
51,000	0.1451	2.6254	−69.700	−56.500	573.57	3.264	0.1091
52,000	0.1383	2.6892	−69.700	−56.500	573.57	3.111	0.1040
53,000	0.1318	2.7546	−69.700	−56.500	573.57	2.965	0.09909
54,000	0.1256	2.8216	−69.700	−56.500	573.57	2.826	0.09444
55,000	0.1197	2.8903	−69.700	−56.500	573.57	2.693	0.09001
56,000	0.1141	2.9606	−69.700	−56.500	573.57	2.567	0.08578
57,000	0.1087	3.0326	−69.700	−56.500	573.57	2.446	0.08176
58,000	0.1036	3.1063	−69.700	−56.500	573.57	2.331	0.07792
59,000	0.09877	3.1819	−69.700	−56.500	573.57	2.222	0.07426
60,000	0.09414	3.2593	−69.700	−56.500	573.57	2.118	0.07078
61,000	0.08972	3.3386	−69.700	−56.500	573.57	2.018	0.06746
62,000	0.08551	3.4198	−69.700	−56.500	573.57	1.924	0.06429
63,000	0.08150	3.5029	−69.700	−56.500	573.57	1.833	0.06127
64,000	0.07767	3.5881	−69.700	−56.500	573.57	1.747	0.05840
65,000	0.07403	3.6754	−69.700	−56.500	573.57	1.665	0.05566

*Tropopause

Figure B1-5. (Sheet 2)

Temperature Correction for Compressibility

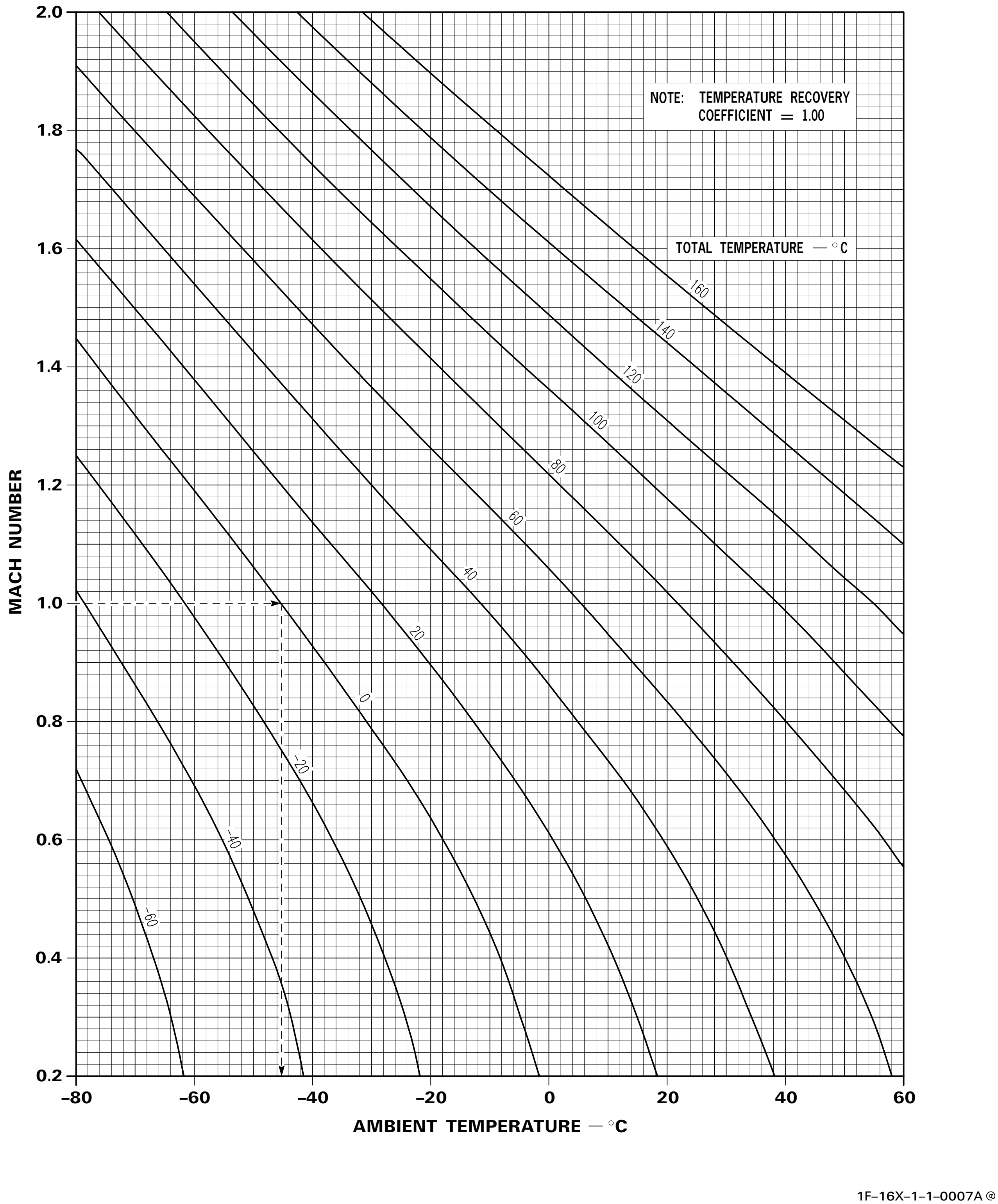


Figure B1-6.

Angle of Attack

DATA BASIS FLIGHT TEST

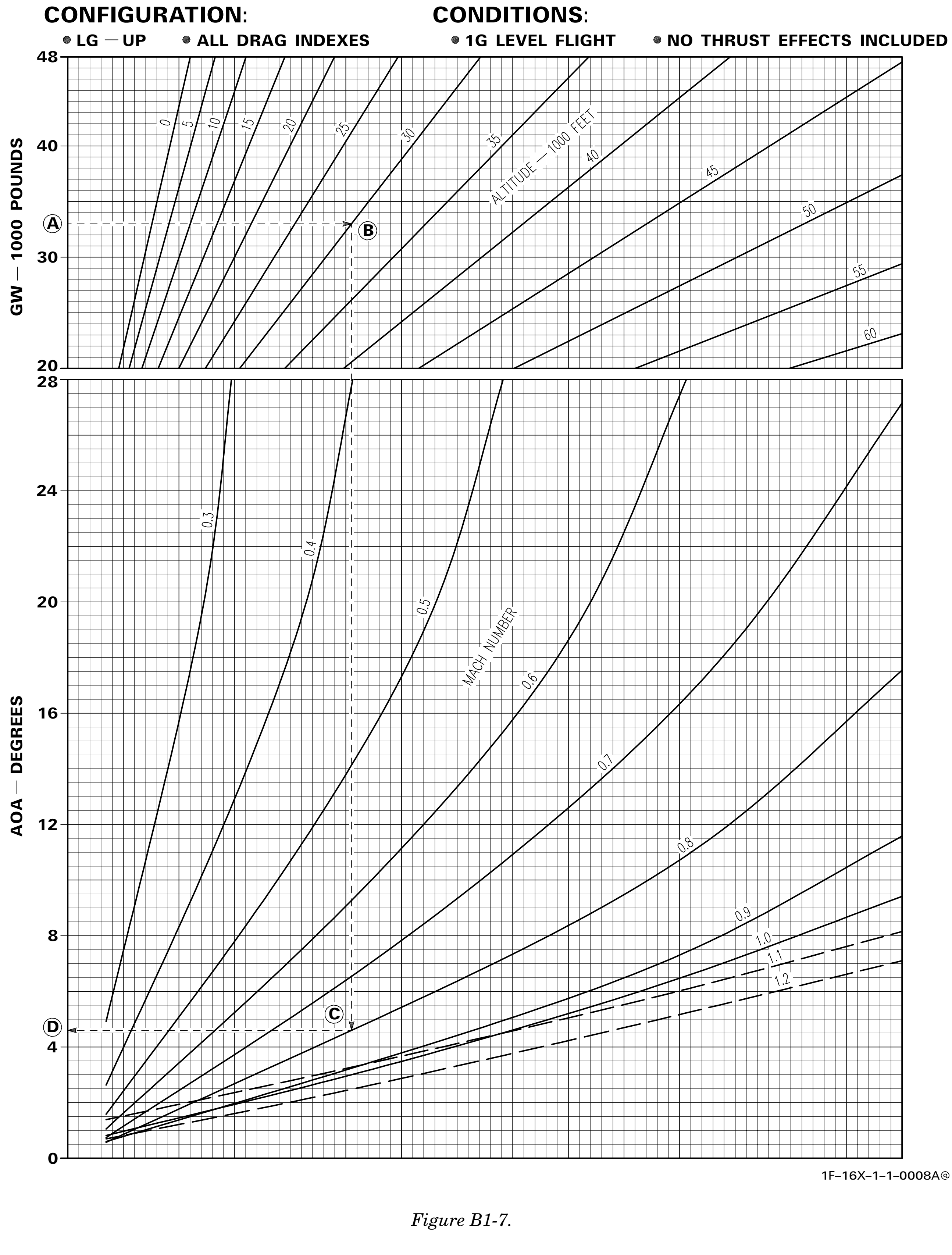


Figure B1-7.

Available Load Factor

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- LG — UP

CONDITIONS:
- ALL TEMPERATURES
- ALL THROTTLE SETTING

NOTES:
- REFER TO SECTION V FOR G LIMITATIONS.
- KCAS ON 9.0G LIMITER IS INACCURATE. (REFER TO FIGURE B1–3.)

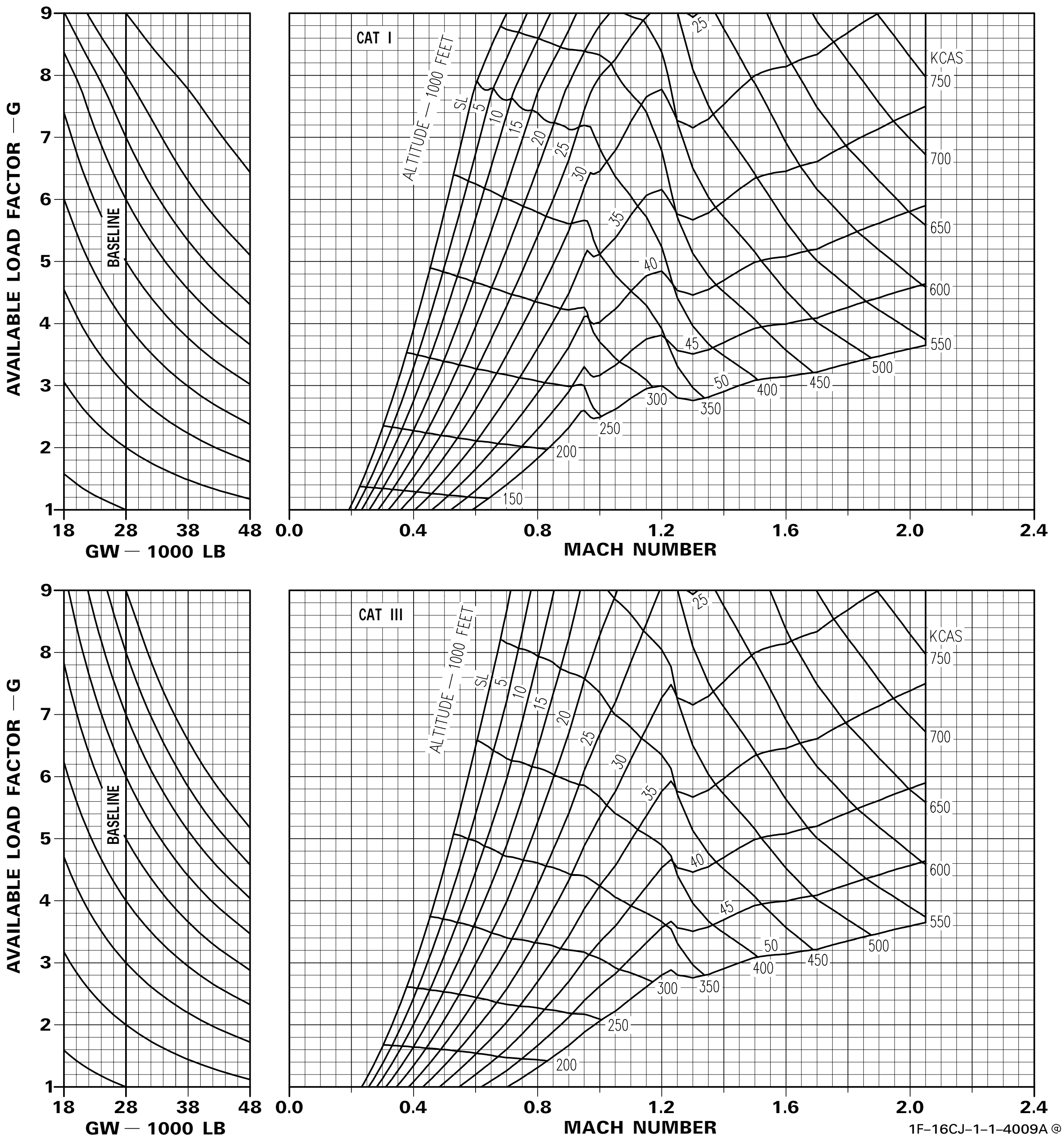


Figure B1-8.

Turn Conversion

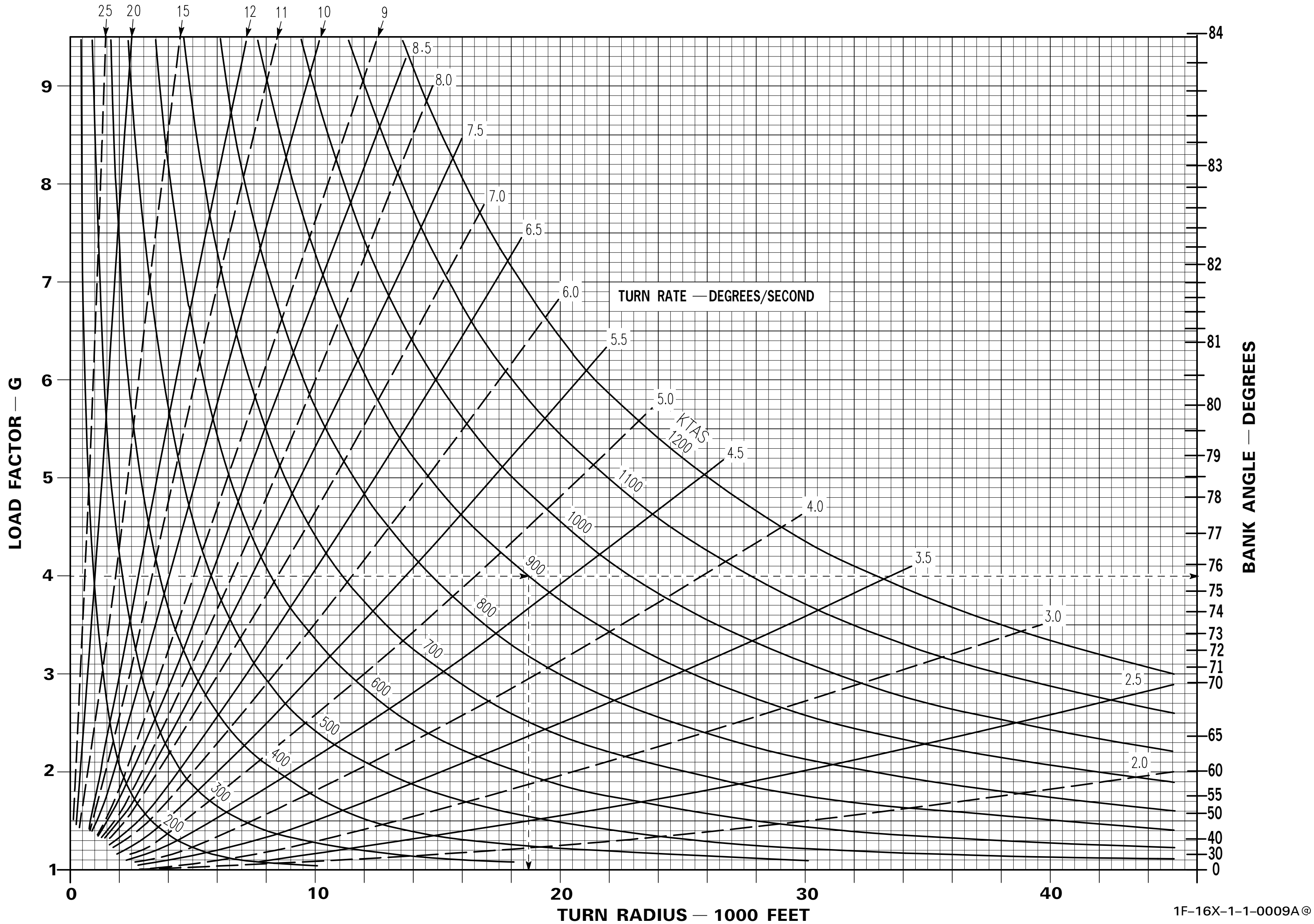


Figure B1-9.

Ground Vehicle Friction Reading–To–RCR Conversion

NOTES:

- **IN MANY AREAS, GROUND VEHICLE FRICTION READING IS THE ONLY AVAILABLE MEASURE FOR RUNWAY BRAKING ACTION.**
- **NORMALLY THE GROUND VEHICLE FRICTION READING, ALSO REFERRED TO AS BRAKING ACTION COEFFICIENT, IS GIVEN AS WHOLE NUMBERS, NOT AS DECIMALS (I.E., 40 INSTEAD OF 0.40).**

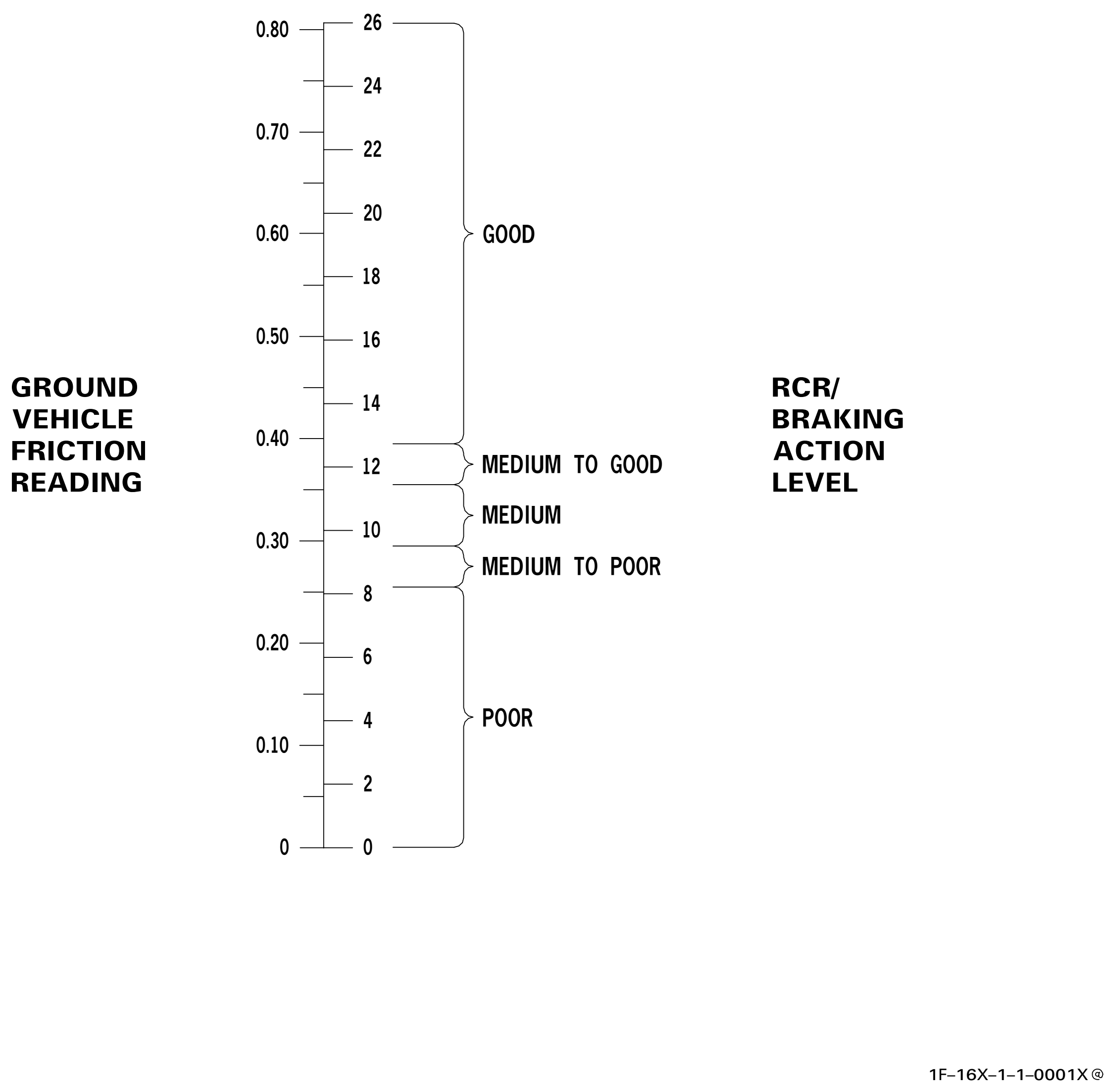


Figure B1-10.

PART 2 – TAKEOFF

TABLE OF CONTENTS

LIST OF CHARTS

TAKEOFF DATA

All data needed for takeoff planning is presented in this section. Takeoff data is presented for MIL and MAX AB throttle settings. For the purpose of Part 2, MIL thrust is called non-AB and MAX AB thrust is called AB. All data is based on normal flap positions (LEF's are at – 2 degrees and TEF's are at 20 degrees down while weight is on the MLG). Rotation speed, takeoff speed, ground run distance, acceleration check speed, maximum refusal speed, and crosswind data may be determined from these charts. Effects of wind, temperature, pressure altitude, runway slope and length, drag index, and RCR are included on appropriate charts.

DEFINITIONS OF TERMS

Takeoff factor – A computed number which is a function of engine thrust, temperature, and altitude. It is used as a control parameter for most charts in this section.

Rotation speed – Airspeed at which rotation to lift-off attitude should be started.

Takeoff speed – Airspeed at which the main tires leave the ground.

Takeoff ground run distance (also takeoff distance) – Ground run in feet from brake release to takeoff speed.

Refusal speed – Maximum airspeed that can be attained and still stop on remaining runway should takeoff be aborted.

Minimum AB blowout speed – Minimum airspeed at which an AB blowout can occur and still reach takeoff speed within the remaining runway length using non-AB thrust.

Runway slope – Change in runway elevation divided by runway length multiplied by 100 (expressed in percent uphill or downhill).

Aerodynamic braking (three-point attitude) – Use of fully opened speedbrakes and maximum horizontal tail deflection (without raising nose tire from runway) to increase deceleration. (Data base for aborted takeoff.)

Maximum effort braking – A single continuous wheel brake application using maximum pedal pressure consistent with maintaining directional control (anti-skid on) in conjunction with aerodynamic braking and drag chute.

DATA BASIS FOR CHARTS

Estimated aerodynamic and propulsion data based on wind tunnel and flight test results was used to generate the information presented in this section. Changes in LEF's positions and engine bleed requirements for weight on or off LG are accounted for, as appropriate. Assumptions and approximations made during the construction of each chart are discussed along with the chart.

TAKEOFF PLANNING

Careful takeoff planning is essential from a standpoint of flight safety and mission success. Proper planning will permit maximum use of the capability of the aircraft to take off with heavy payloads while maintaining adequate safety margins. Takeoff planning comprises the following:

1. Determine aircraft configuration (total aircraft takeoff GW and drag index).

2. Obtain runway conditions for expected takeoff time (pressure altitude, temperature, windspeed, wind direction, length, slope, etc.).

3. Compute appropriate data.

This information will permit decisions to be made regarding downloading or continuing or aborting takeoff in the event of an emergency. Each chart is discussed in detail in the following paragraphs. An example takeoff planning problem is worked in conjunction with the discussion. The following typical aircraft and field information is normally obtained before using the charts:

- Takeoff GW (Aircraft operating weight plus fuel, ammo, and stores) = 33,000 pounds (Allow for ground operation fuel consumption; refer to Part 3) (Normal taxi operations require approximately 25 pounds of fuel per minute)
- Store loading = Two AIM-9L missiles at stations 1 and 9, two MK 84 bombs at stations 3 and 7, two 370-gallon fuel tanks at stations 4 and 6
- Takeoff CG = Refer to Weight and Balance Form F (DD Form 365-4)
- Drag index = Refer to T.O. GR1F-16CJ-1-2, STORES LIMITATIONS
- Runway pressure altitude = 2000 feet
- Runway temperature = 40°C
- Runway length = 6000 feet (available length)
- Runway condition = Dry concrete (RCR = 23)
- Runway slope = 1 percent (uphill)
- Runway wind = 10 knots (headwind)

TAKEOFF FACTOR

The takeoff factor concept of presenting takeoff performance is used to simplify chart presentations. The takeoff factor is a computed number and is common to all charts for a given thrust setting, pressure altitude, and temperature.

REFER TO FIGURE B2-1.

Enter the chart with runway temperature (A). Proceed horizontally to pressure altitude (B) and then vertically down to read MIL takeoff factor (C) or MAX AB takeoff factor (D).

SAMPLE PROBLEM.

A. Runway temperature = 40°C
B. Pressure altitude = 2000 feet
C. MIL takeoff factor = 3.16
D. MAX AB takeoff factor = 1.85

TAKEOFF SPEED

Takeoff and rotation speeds are obtained from figure B2-2.

REFER TO FIGURE B2-2.

Enter chart with takeoff GW (A), proceed vertically to takeoff speed line (B), and proceed horizontally left to takeoff speed (C) for 35 percent CG. Then compute takeoff and rotation speeds for the actual takeoff CG.

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	CG	=	37.0 percent
C.	Takeoff speed at 35.0 percent CG	=	170 KIAS
D.	Takeoff speed at 37.0 percent CG: 170 − (0.8 × 2.0)	=	168 KIAS
E.	Rotation speed:		
	• Non-AB	=	158 KIAS
	• AB	=	153 KIAS

Rotation to 8 degrees pitch angle for lift-off increases takeoff speed 8 percent.

D.	Takeoff speed at 37.0 percent CG: 168 × 1.08	=	181 KIAS
E.	Rotation speed:		
	• Non-AB	=	171 KIAS
	• AB	=	166 KIAS

For takeoff speed corrections with roll trim other than zero, refer to TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES, this part.

TAKEOFF DISTANCE

Distance from brake release to takeoff speed may be determined from figure B2-3. Because the brakes cannot hold the aircraft when takeoff thrust is applied, takeoff thrust should be selected as quickly as practical after brake release. Thrust buildup to takeoff thrust is considered in the takeoff distance. Effects of GW, CG, drag index, wind, and runway slope are given on the chart.

REFER TO FIGURE B2-3.

Enter the chart with takeoff factor (A). Proceed horizontally to GW (B), then vertically down to CG baseline, and follow guideline to CG (C). Proceed downward to drag index baseline and parallel guidelines to drag index (D). Proceed downward to slope baseline and parallel guideline to slope (E); continue to wind baseline, again parallel guidelines to wind (F), and finally proceed down to read takeoff distance (G).

SAMPLE PROBLEM.

A.	Non-AB takeoff factor	=	3.16
B.	GW	=	33,000 pounds
C.	CG	=	37.0 percent
D.	Drag index	=	150
E.	Slope	=	1 percent (uphill)
F.	Wind	=	10 knots (headwind)
G.	Takeoff distance	=	4243 feet

Using an AB takeoff factor of 1.85, takeoff distance is 2384 feet.

Rotation to 8 degrees pitch angle for lift-off increases takeoff distance 18 percent.

G.	Takeoff distance:		
	• Non-AB 4243 × 1.18	=	5007 feet
	• AB 2384 × 1.18	=	2813 feet

Because of the short runway (6000 feet) and high GW combination, MAX AB should be used.

ACCELERATION CHECK SPEED

Airspeed during takeoff ground roll is presented in figure B2-4. Airspeed from start of takeoff roll or between any two points during takeoff roll can be checked. Takeoff thrust should be selected as quickly as practical after brake release in order to minimize distance covered during engine acceleration. Reliable HUD airspeed indications should begin at about 50 knots.

REFER TO FIGURE B2-4.

Enter chart with takeoff factor (A). Proceed horizontally to the right to a distance line (B), down to the GW baseline and parallel the nearest weight guideline to GW (C), down to drag index baseline and parallel the nearest guideline to drag index (D), down to wind baseline and parallel nearest guideline to wind (E), down to slope baseline and parallel nearest guideline to slope (F), and finally down to read acceleration check speed (G).

SAMPLE PROBLEM.

A.	Takeoff factor (AB)	=	1.85
B.	Distance from brake release	=	1500 feet
C.	GW	=	33,000 pounds
D.	Drag index	=	150
E.	Wind	=	10 knots (headwind)
F.	Slope	=	1 percent (uphill)
G.	Acceleration check speed	=	129 KIAS

REFUSAL SPEED

Runway conditions have a significant effect on stopping performance. Runway conditions are shown on the chart by representative values of RCR. Refusal speed for dry runway conditions, dry concrete (RCR = 23) and dry (RCR = 16) is presented in figures B2-5 and B2-6, sheet 1. Refusal speed for wet runway conditions, wet concrete (RCR = 18) and wet (RCR = 12) is presented in figures B2-5 and B2-6, sheet 2. Refusal speed for loose snow (RCR = 8) and smooth ice (RCR = 4) is presented in figures B2-5 and B2-6, sheet 3. Data for measured RCR not provided on the charts can be obtained by interpolation. For wet runways, interpolate between wet concrete (RCR = 18) and wet (RCR = 12). For runways with no liquid water present, interpolate between dry concrete (RCR = 23), dry (RCR = 16), snow (RCR = 8), and icy (RCR = 4). If RCR is unknown and runway is wet, use (RCR = 18) for wet concrete and (RCR = 12) for wet asphalt. The wet runway effects only consider the effects of incipient hydroplaning. Actual hydroplaning effects are not shown. Effects of runway length, wind, and slope are also shown. Drag index effects are negligible. Certain heavy GW/low RCR combinations can result in the refusal speed for a heavy GW aircraft being higher than the refusal speed for a light GW aircraft. Three-point aerodynamic braking is used until airspeed is reduced to maximum brake application speed.

Refusal speeds with drag chute are presented in figures B2-7 and B2-8 for dry concrete runways. The drag chute is deployed at refusal speed. Refer to Section V for limits.

REFER TO FIGURE B2-6.

Enter appropriate chart with takeoff factor (A). Proceed horizontally left to GW (B) and then vertically up to runway length (C). From there, proceed horizontally right to wind baseline and parallel nearest guideline to wind (D) and then horizontally right to slope baseline and parallel nearest guideline to slope (E). Finally, proceed horizontally right to read refusal speed (dry runway RCR = 23) (F).

SAMPLE PROBLEM.

A.	Takeoff factor (AB)	=	1.85
B.	GW	=	33,000 pounds
C.	Available runway length	=	6000 feet
D.	Wind	=	10 knots (headwind)
E.	Slope	=	1 percent (uphill)
F.	Refusal speed (dry runway)	=	153 KIAS

NOTE

Maximum effort braking should be applied when airspeed is below the maximum brake application speed obtained from figure B2-12.

MINIMUM AB BLOWOUT SPEED

An AB takeoff can be safely continued after an AB blowout only if minimum AB blowout speed is attained prior to the blowout. If the engine instruments indicate normal non-AB operation after the blowout at minimum AB blowout speed, the takeoff can be continued and takeoff speed attained within the remaining runway length. Figure B2-9 contains data needed to determine minimum AB blowout speed.

REFER TO FIGURE B2-9.

Enter chart with MAX AB takeoff factor (A). Proceed to the right to GW (B), then down to drag baseline and follow guidelines to drag index (C), down to wind baseline and follow guidelines to wind (D), and down to slope baseline and follow guidelines to slope (E). From (E), proceed down to runway length baseline, follow guidelines to runway length (F), and then proceed to the left to GW baseline. Follow guidelines to GW and finally to the left to read minimum MAX AB blowout speed (G).

SAMPLE PROBLEM.

A.	MAX AB takeoff factor	= 1.85
B.	GW	= 33,000 pounds
C.	Drag index	= 150
D.	Wind	= 10 knots (headwind)
E.	Slope	= 1 percent (uphill)
F.	Available runway length	= 4000 feet
G.	Minimum MAX AB blowout speed	= 85 KIAS

If an AB blowout occurs before reaching minimum AB blowout speed, takeoff cannot be continued.

TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES

Roll trim should be set prior to takeoff with asymmetric stores to prevent wing drop. A roll trim input will cause one TEF to be less than full down; therefore, takeoff speed should be increased by 2 knots for each dot of roll trim applied in order to compensate for reduced lift. Takeoff distance increases proportionately to the speed increase. The roll trim required for various combinations of takeoff speed and store asymmetry is shown in figure B2-10.

NOTE

> It is possible to exceed the lateral trim authority of the aircraft for an onspeed takeoff with a net asymmetric (rolling) moment less than aircraft takeoff limits.

REFER TO FIGURE B2-10.

Enter chart with takeoff speed (A), proceed upward to asymmetric store weight (B) and horizontally to the store station baseline, and follow the guidelines to the store station at which the asymmetric load is present (C). From (C), proceed horizontally to read dots of roll trim required at (D).

SAMPLE PROBLEM.

A.	Takeoff speed	= 151 KIAS
B.	Asymmetric store weight	= 800 pounds
C.	Asymmetric store station	= 3
D.	Dots of roll trim required	= Approximately 2, right wing down

TAKEOFF AND LANDING CROSSWIND LIMITS

Figure B2-11 is to be used to convert reported wind direction and windspeed into headwind and crosswind components. Crosswind component limits for takeoff and landing are also shown.

REFER TO FIGURE B2-11.

Enter chart at the point where reported windspeed intersects wind direction relative to runway (A). Proceed down to read crosswind (B) and proceed to the left to read headwind (C).

SAMPLE PROBLEM.

A.	Windspeed	= 15 knots
•	Wind direction relative to runway	= 48 degrees
B.	Crosswind	= 11.1 knots
C.	Headwind	= 10 knots

BRAKE ENERGY LIMITS – MAXIMUM EFFORT BRAKING

Heat energy is absorbed in the brake discs when wheel brakes are used. Brake disc temperature increases in direct proportion to the amount of energy absorbed. For normal aircraft operations, almost all the heat energy absorbed during brake usage is temporarily stored in the brake discs and is dissipated during a subsequent cooling period. As an example, the energy absorbed during an approximate 15-second brake application as part of a normal landing is not completely dissipated for more than 1 hour after the aircraft is stopped. The heat energy transferred to the tire/wheel assembly and the brake piston housing causes the temperature of those units to increase to a peak temperature 10-20 minutes after brake usage. Greater amounts of brake energy absorption cause higher disc temperatures and produce faster heat transfer to the tire/wheel assembly and brake piston housing. Since the strength of the brake discs, tire/wheel assembly, and brake piston housing decreases as the temperature increases, the severity of brake usage that can be safely withstood is dependent on brake component temperatures.

REFER TO FIGURE B2-12.

Enter chart with GW (A), follow a vertical line downward to brake application speed (B), and proceed horizontally to point (C) at the right of weight/brake application speed plot. From point (C), follow guidelines upward to the right.

To compute the stopping energy, enter chart with runway temperature (D), follow a horizontal line to the left to pressure altitude (E), and then project a line vertically downward to intersection (F) with the line previously constructed from point (C). Proceed horizontally from intersection point (F) to the right to read brake stopping energy (G).

To compute taxi energy component, continue downward projection of vertical line for GW (A) until it intersects taxi speed (H); then proceed horizontally to the right until it intersects the taxi distance (I); then proceed vertically upward to read taxi energy (J).

The cumulative total energy is determined by continuing the projections of the lines for stopping and taxi energy until they intersect (K).

Quick turnaround takeoff capability can be determined by using the SAFE TIRE BEAD TEMPERATURE chart (figure B2-13). Enter with the cumulative total energy absorption (K). Proceed horizontally to right to intersect vertical line representing ambient temperature. This intersection (L) shows no cooling period required.

SAMPLE PROBLEM.

Condition: Full stop landing followed by 5000 feet taxi

Find: Total stopping energy

Determine: Quick turnaround capability

A.	GW	=	23,000 pounds
B.	Brake application speed	=	100 KIAS
D.	Runway temperature	=	80°F
E.	Pressure altitude	=	1000 feet
G.	Stopping energy	=	4.9 million foot-pounds
H.	Taxi speed	=	20 knots groundspeed
I.	Taxi distance	=	5000 feet
J.	Taxi energy	=	0.85 million foot-pounds
K.	Total stopping energy (G + J)	=	5.75 million foot-pounds
L.	Intersection	=	Quick turnaround possible

ABORTED TAKEOFF MAXIMUM BRAKE APPLICATION SPEED

Figure B2-12 can also be used for finding the maximum brake application speed for aborted takeoff considering taxi energy absorbed prior to starting takeoff run. This is accomplished by computing the taxi energy and projecting this value vertically upward to the intersection of the danger zone upper limit (23.5 million foot-pounds per brake). From this intersection, project horizontally to the left to the remaining brake energy capacity available for stopping during aborted takeoff. The maximum brake application speed can then be found for the prevailing conditions of GW, pressure altitude, and temperature. If brakes must be applied prior to complete thrust decay to idle (approximately 4 seconds), maximum brake application speed must be reduced by 20 KIAS.

Takeoff Factor

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

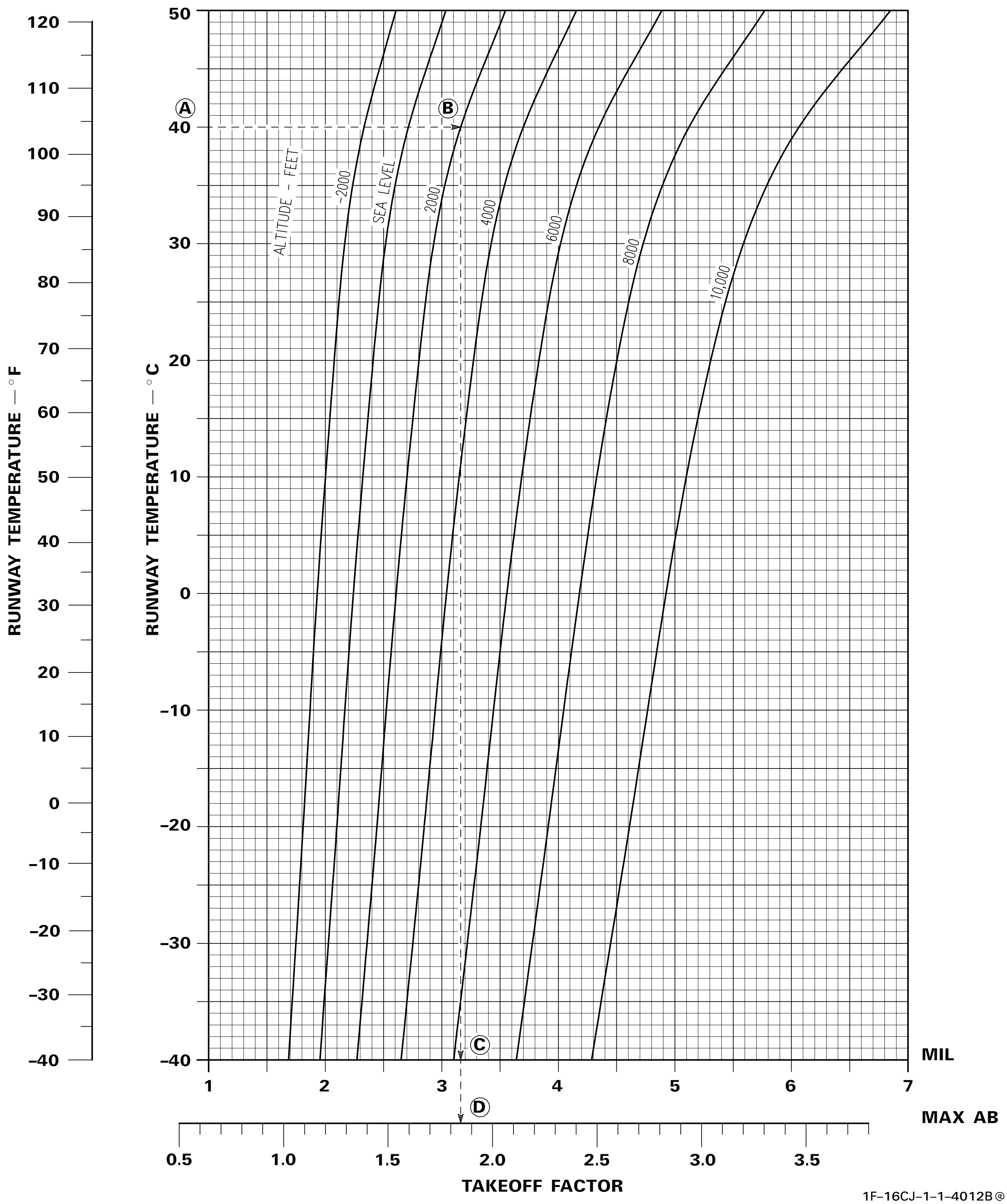


Figure B2-1.

Takeoff Speed

CONFIGURATION:
- ALL DRAG INDEXES
- CG = 35% MAC
- ZERO ROLL TRIM

CONDITIONS:
- ALL ALTITUDES
- ALL TEMPERATURES
- 10 DEGREES PITCH ATTITUDE

NOTES:
- ROTATE AT 10 KNOTS LESS THAN COMPUTED TAKEOFF SPEED FOR NON–AB.
- ROTATE AT 15 KNOTS LESS THAN COMPUTED TAKEOFF SPEED FOR AB.
- INCREASE TAKEOFF SPEED 8 PERCENT FOR TAKEOFF AT 8 DEGREES PITCH ATTITUDE.
- INCREASE TAKEOFF SPEED 0.8 KNOT FOR EACH 1% FORWARD OF 35% MAC.
- DECREASE TAKEOFF SPEED 0.8 KNOT FOR EACH 1% AFT OF 35% MAC.
- FOR TAKEOFF SPEED CORRECTION WITH ROLL TRIM OTHER THAN ZERO, REFER TO TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES CHART (FIGURE B2–10).



Figure B2-2.

Takeoff Distance

DATA BASIS FLIGHT TEST

CONDITIONS:

- LIFT-OFF AT TAKEOFF SPEED
- 10 DEGREES PITCH ATTITUDE

ENGINE F110-GE-129

NOTE: 8 DEGREES PITCH ATTITUDE INCREASES TAKEOFF DISTANCE 18 PERCENT.

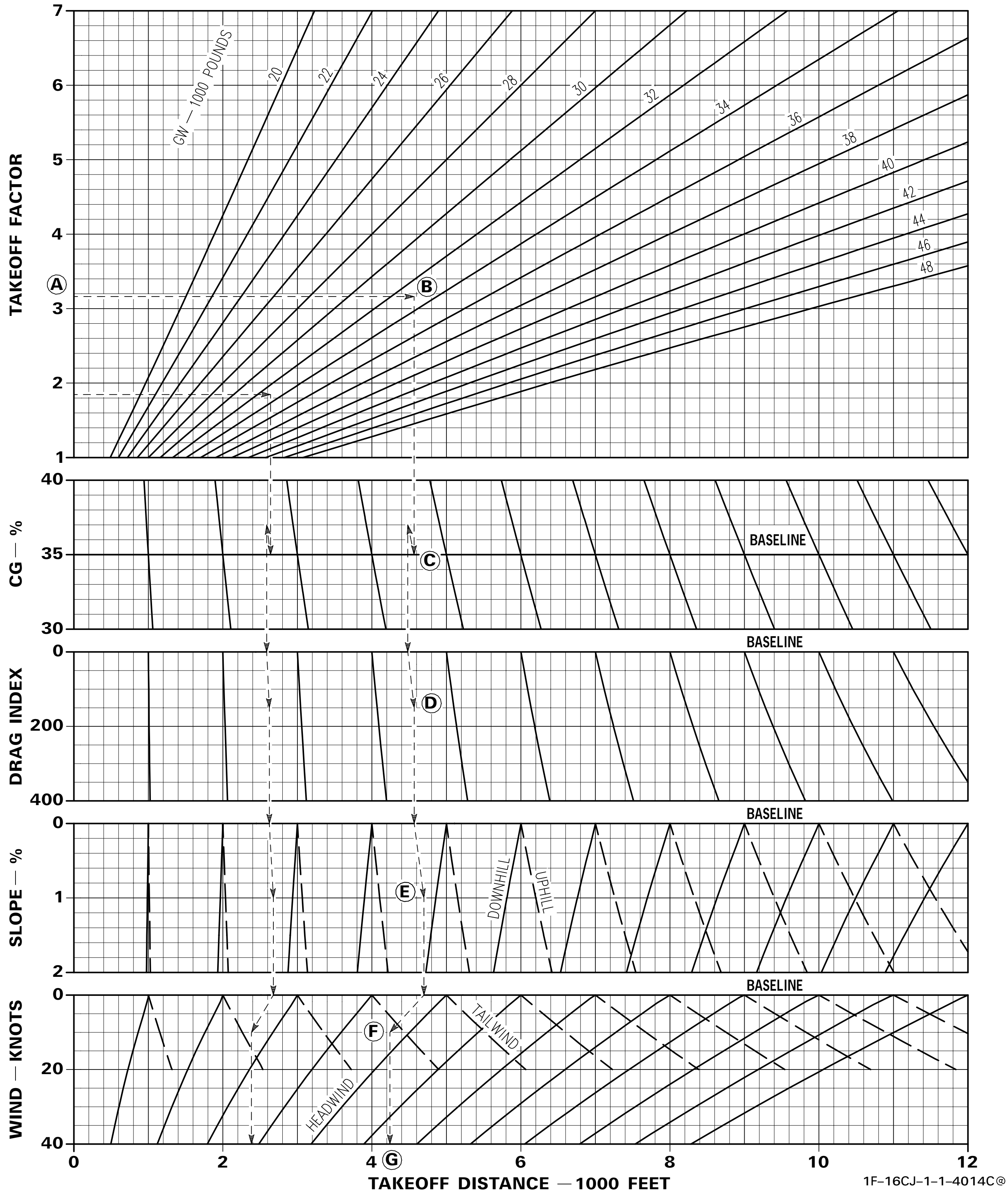


Figure B2-3.

Acceleration Check Speed

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

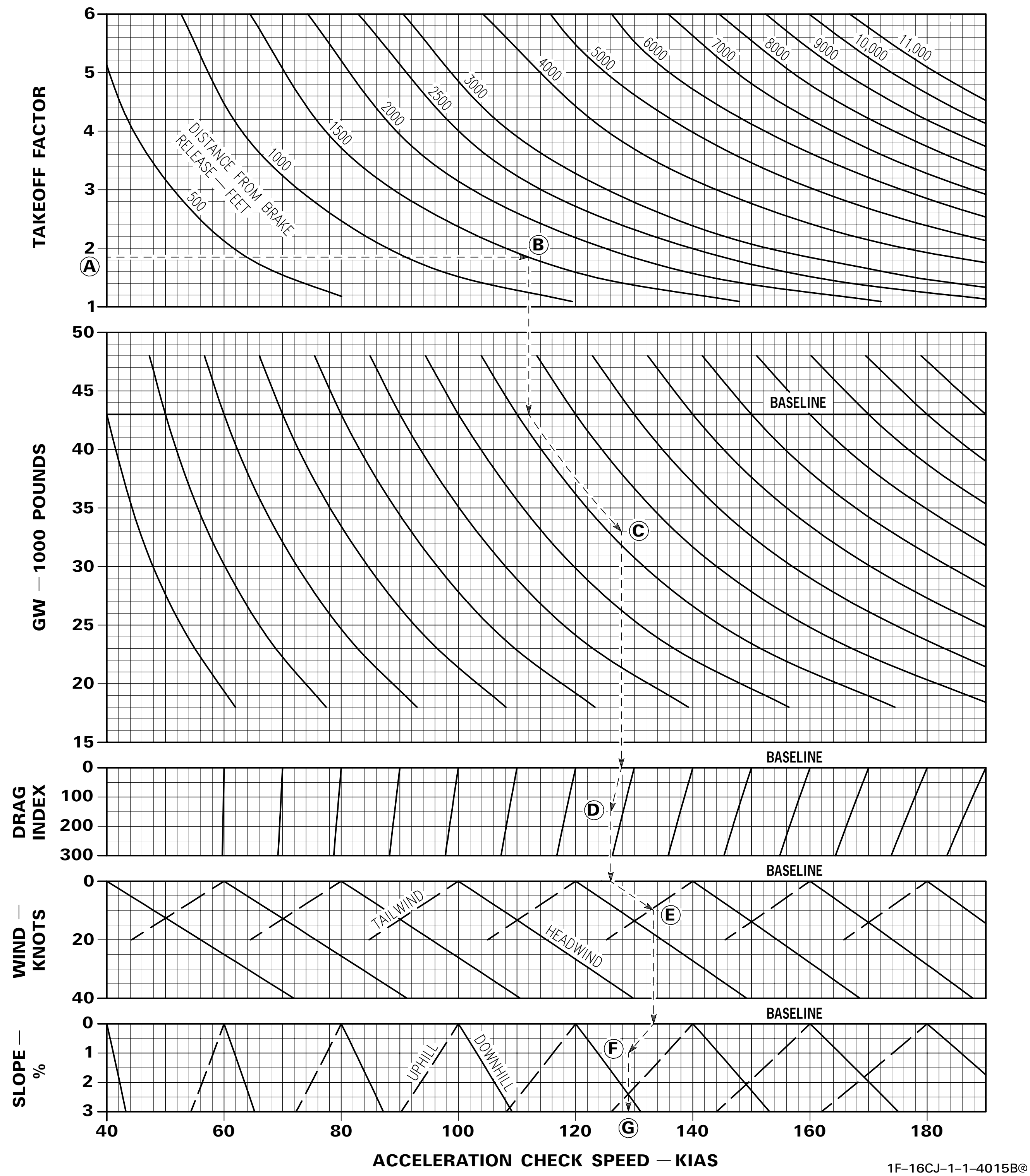


Figure B2-4.

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED

ENGINE F110–GE–129

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12)
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE REFUSAL SPEED BY 4 KIAS FOR ALL GW'S.

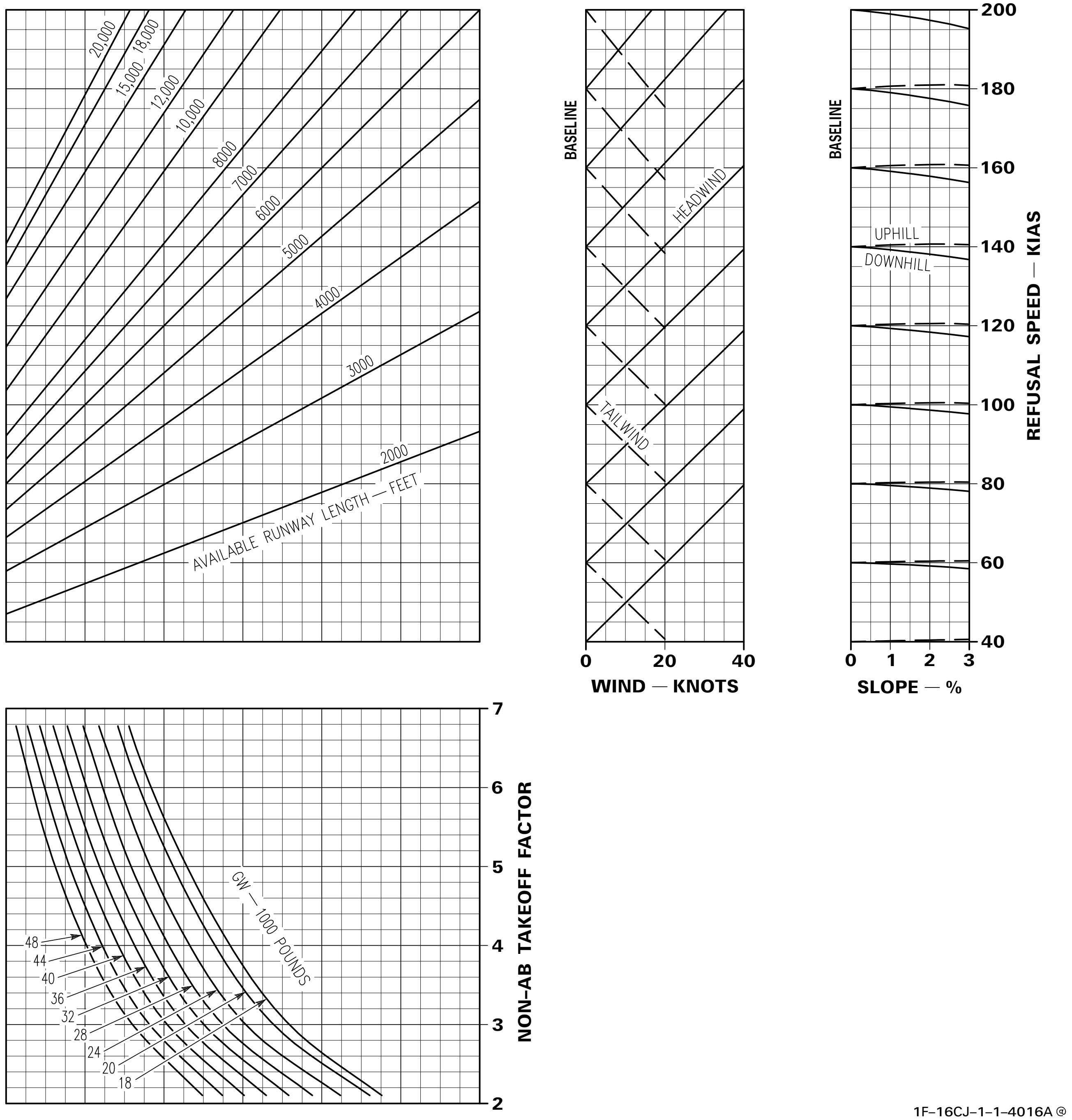


Figure B2-5. (Sheet 1)

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED

ENGINE F110–GE–129

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE REFUSAL SPEED BY 9 KIAS FOR ALL GW'S.

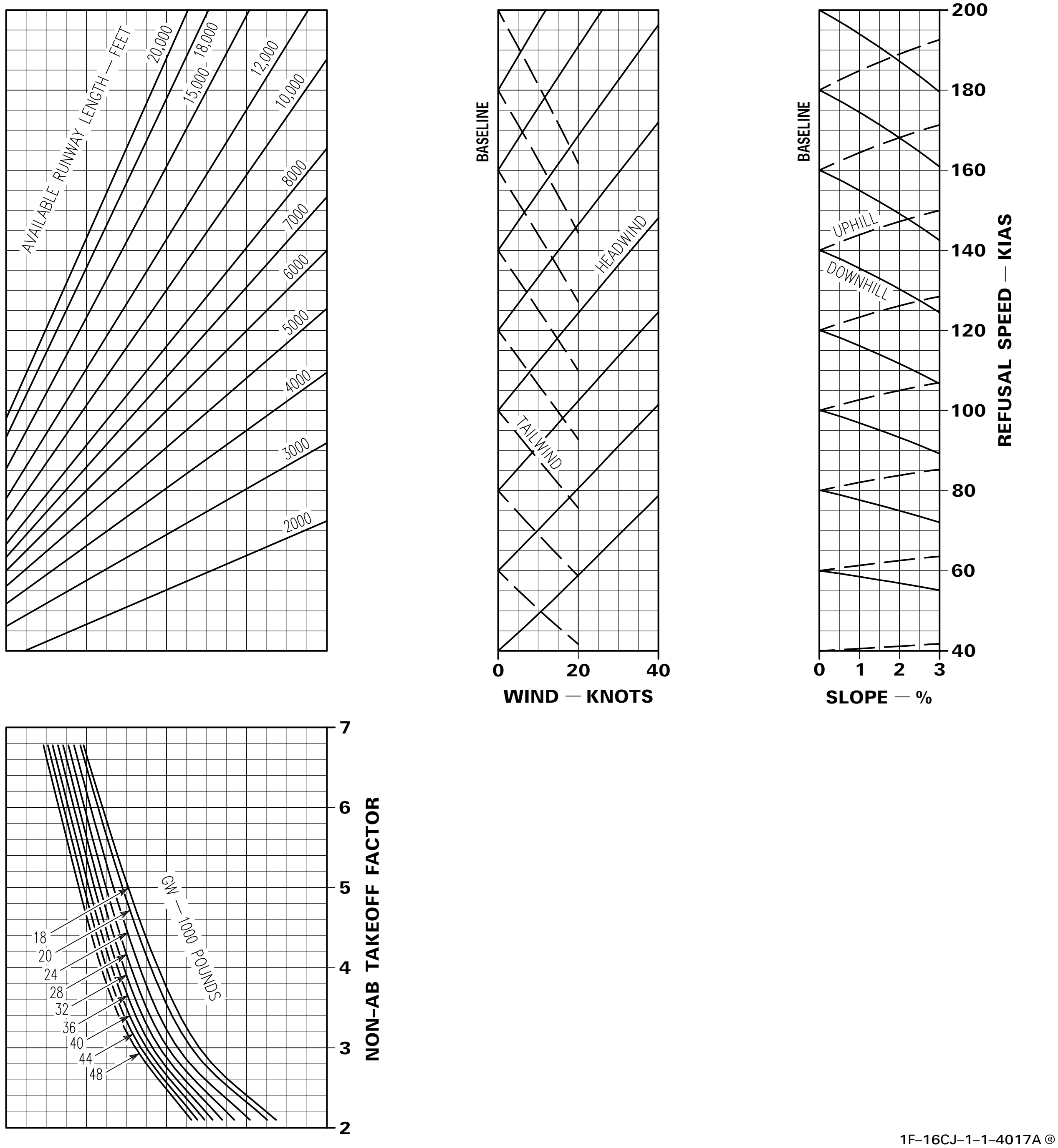


Figure B2-5. (Sheet 2)

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–10).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

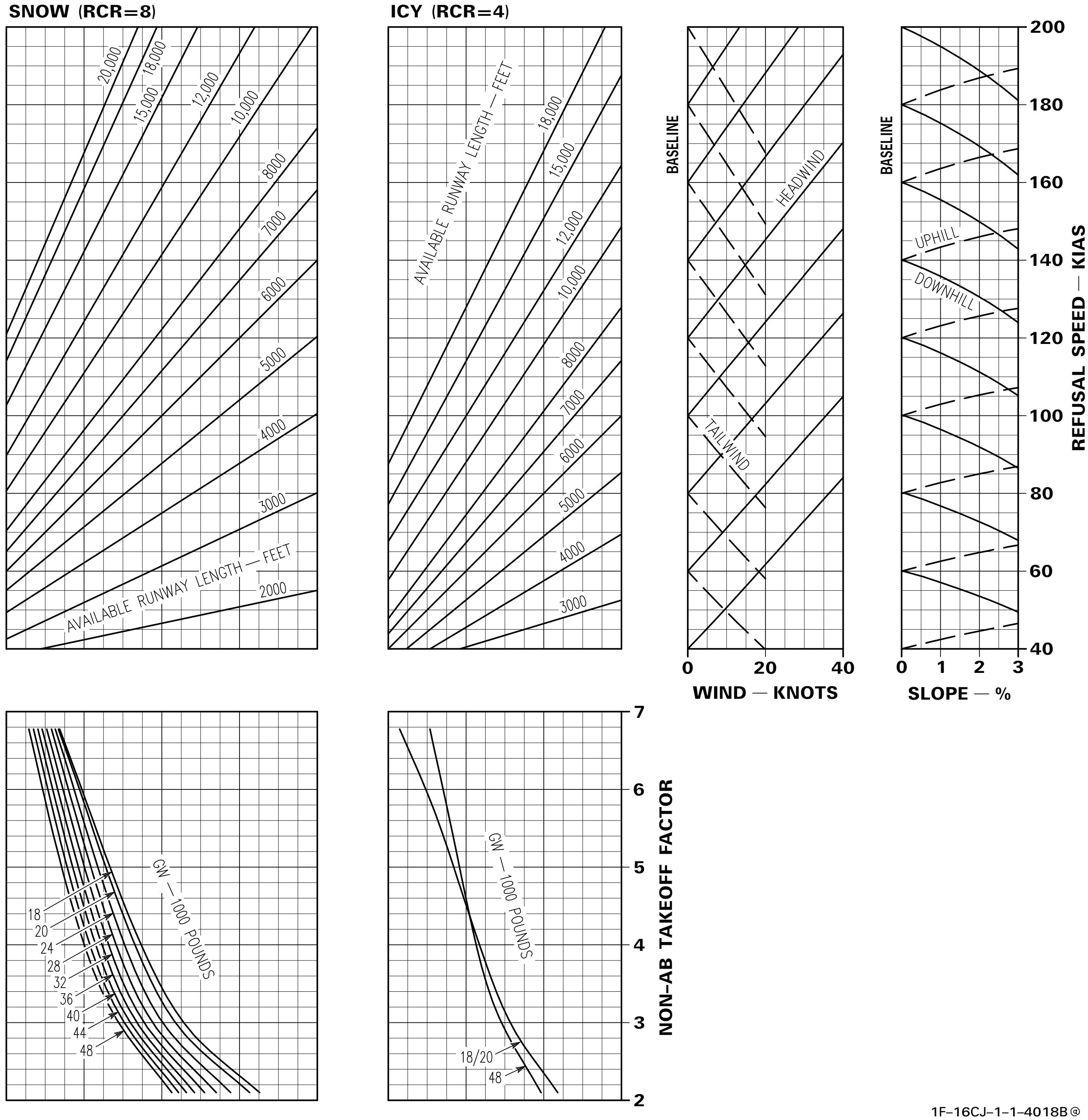


Figure B2-5. (Sheet 3)

Refusal Speed (AB)

DATA BASIS ESTIMATED

ENGINE F110–GE–129

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:

- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE REFUSAL SPEED BY 5 KIAS FOR ALL GW'S.

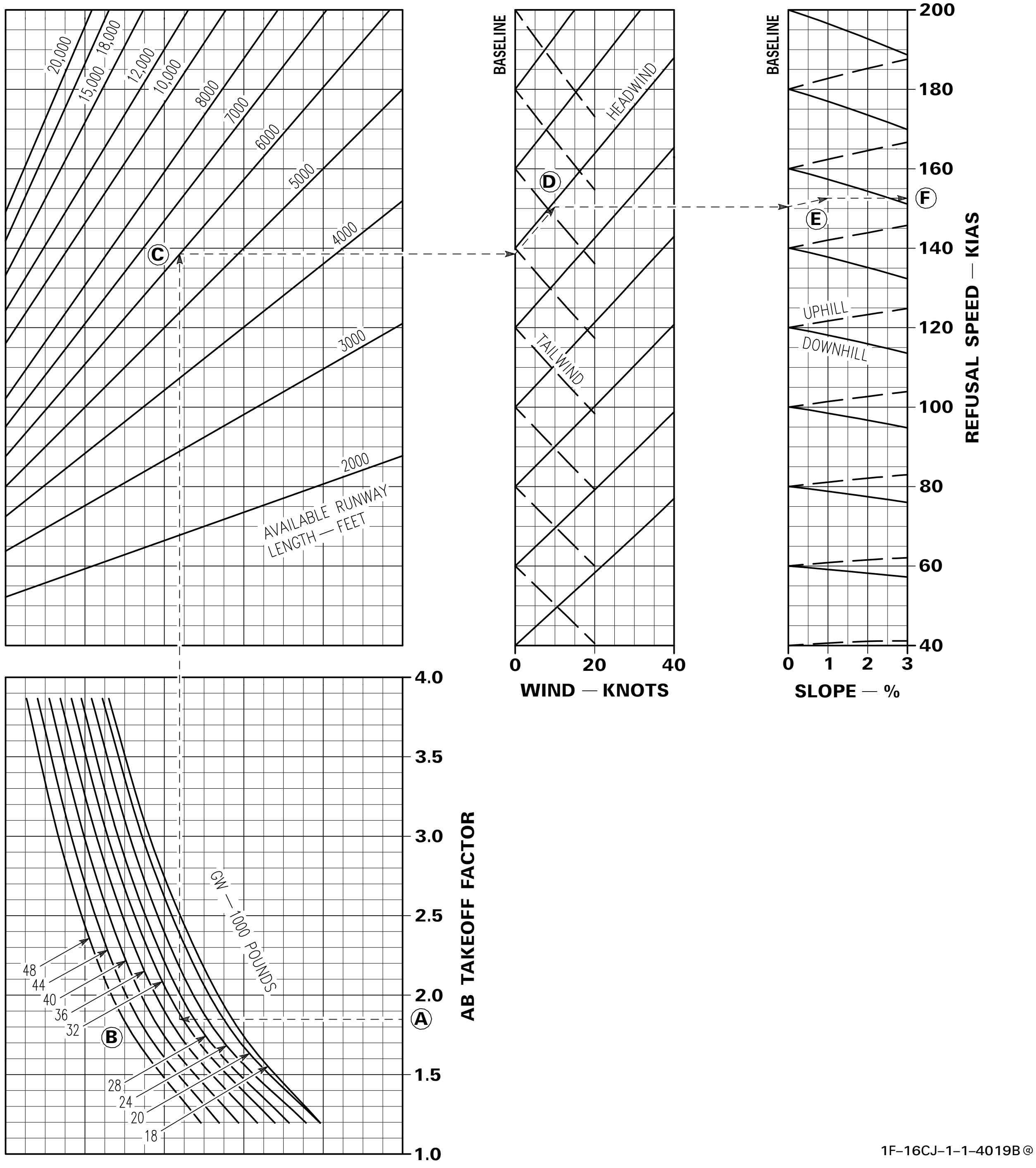


Figure B2-6. (Sheet 1)

Refusal Speed (AB)

DATA BASIS ESTIMATED

ENGINE F110–GE–129

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE REFUSAL SPEED BY 10 KIAS FOR ALL GW'S.

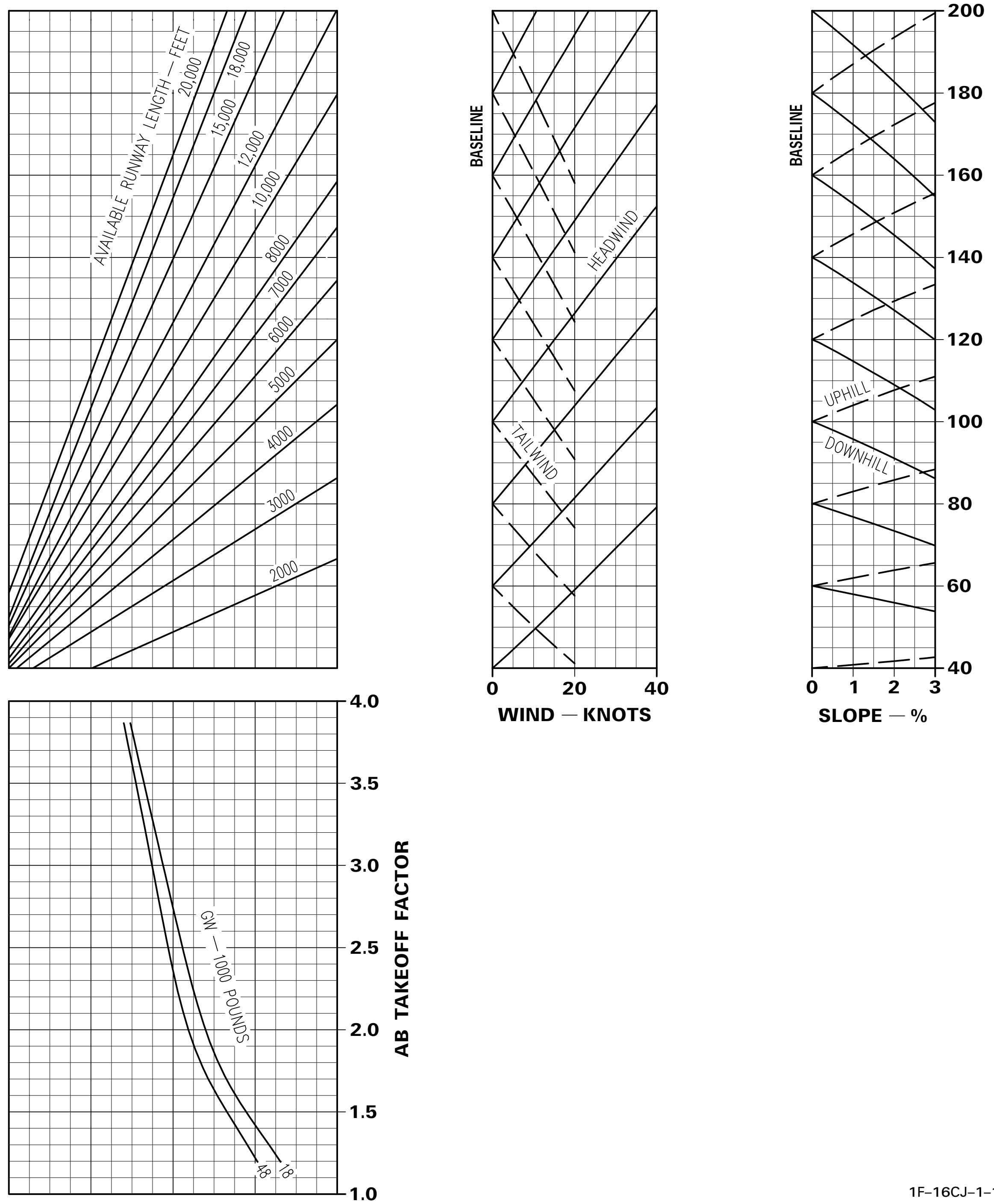


Figure B2-6. (Sheet 2)

Refusal Speed (AB)

DATA BASIS ESTIMATED

ENGINE F110–GE–129

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

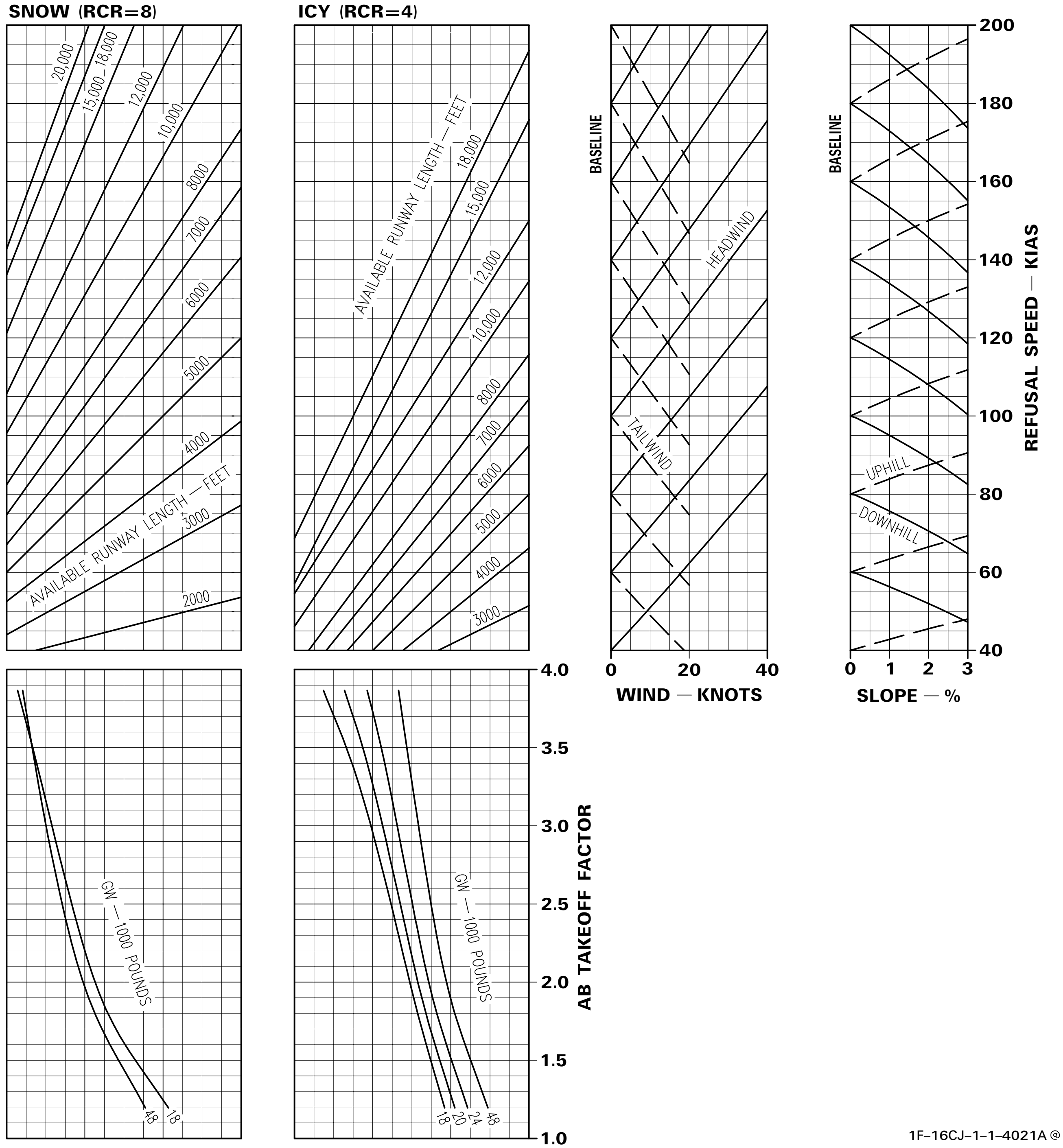


Figure B2-6. (Sheet 3)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE DRY RUNWAY REFUSAL SPEED BY 2.5 KIAS FOR ALL GW'S.

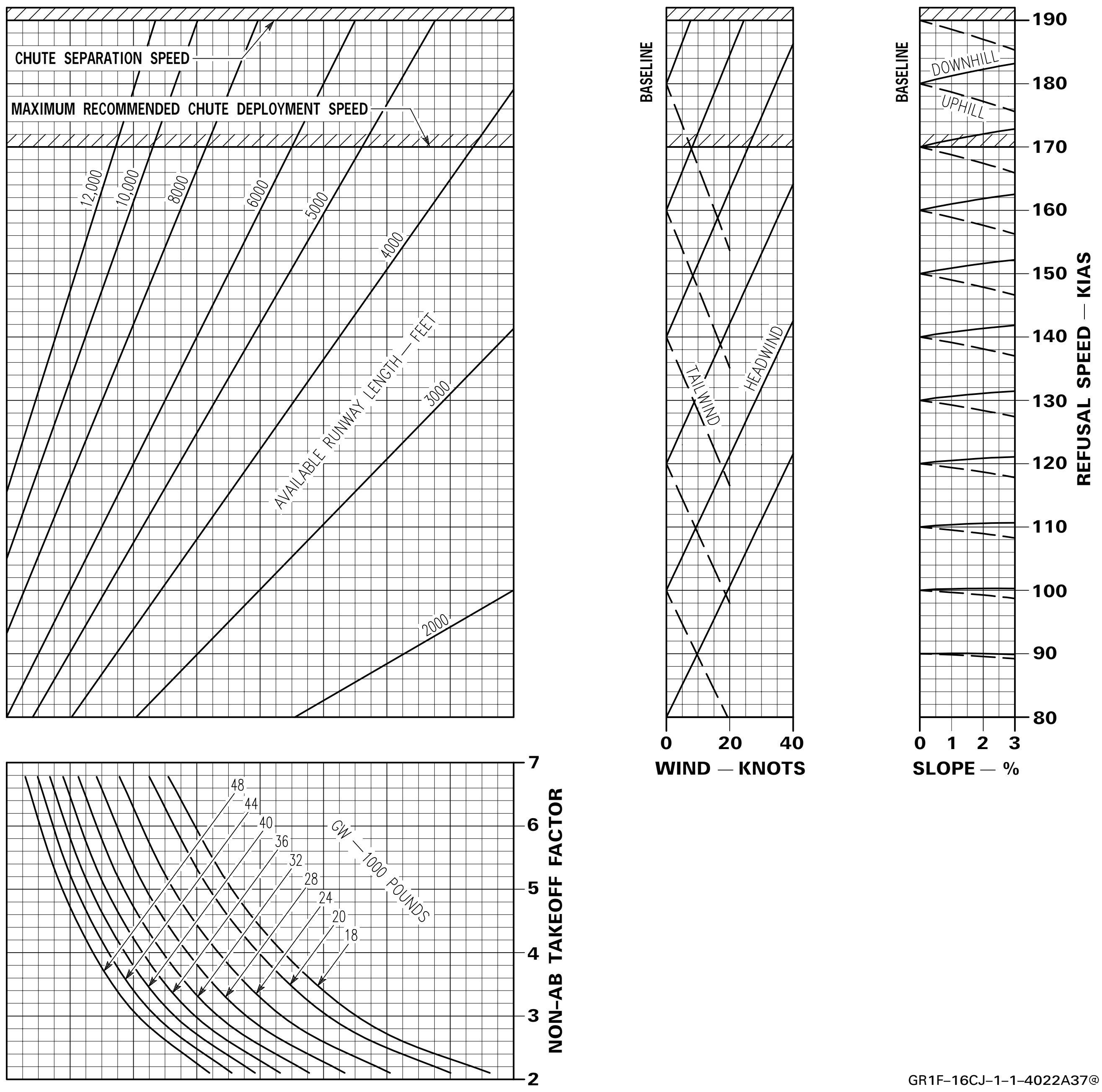


Figure B2-7. (Sheet 1)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE WET RUNWAY REFUSAL SPEED BY 6 KIAS FOR ALL GW'S.

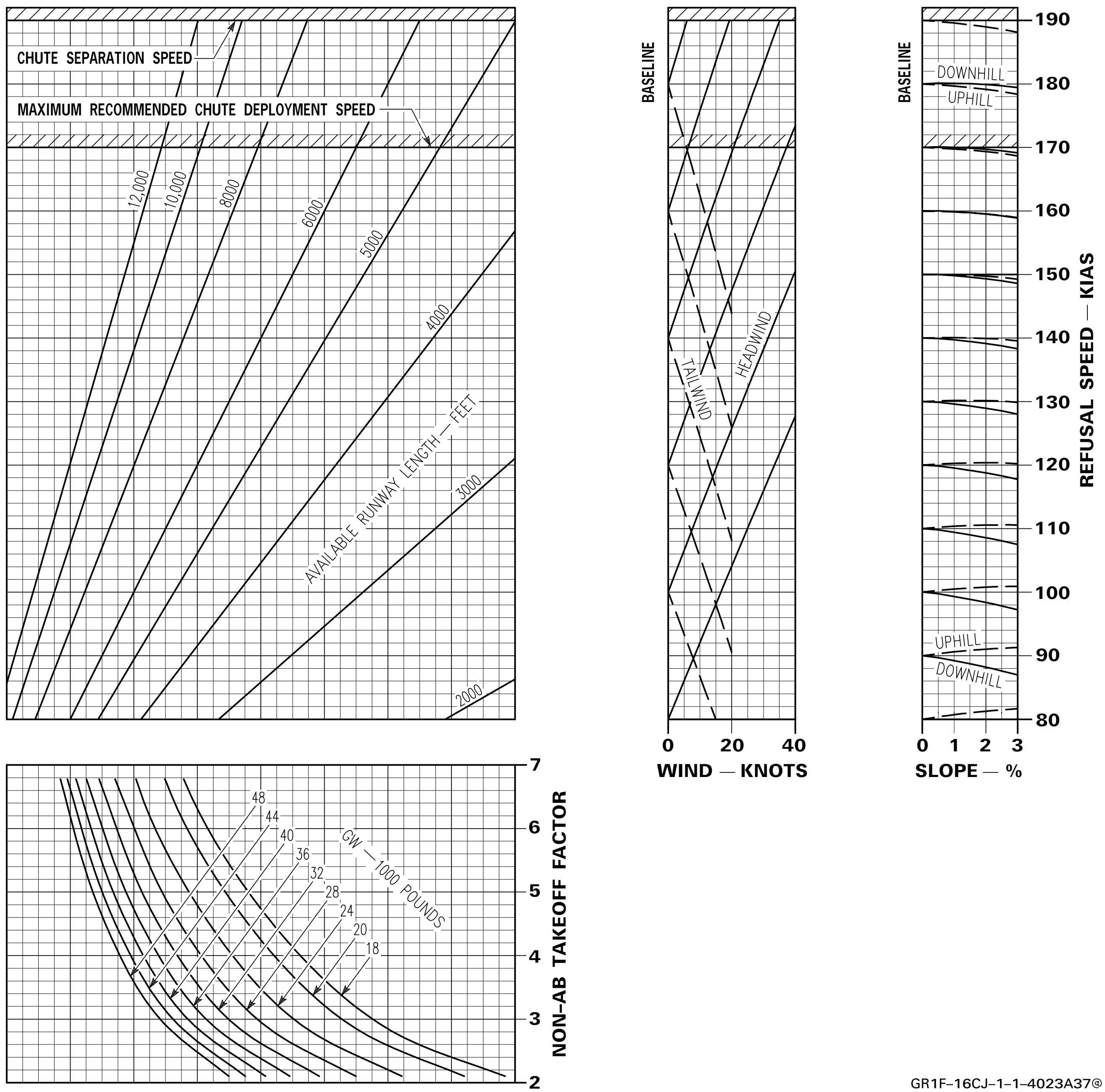


Figure B2-7. (Sheet 2)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

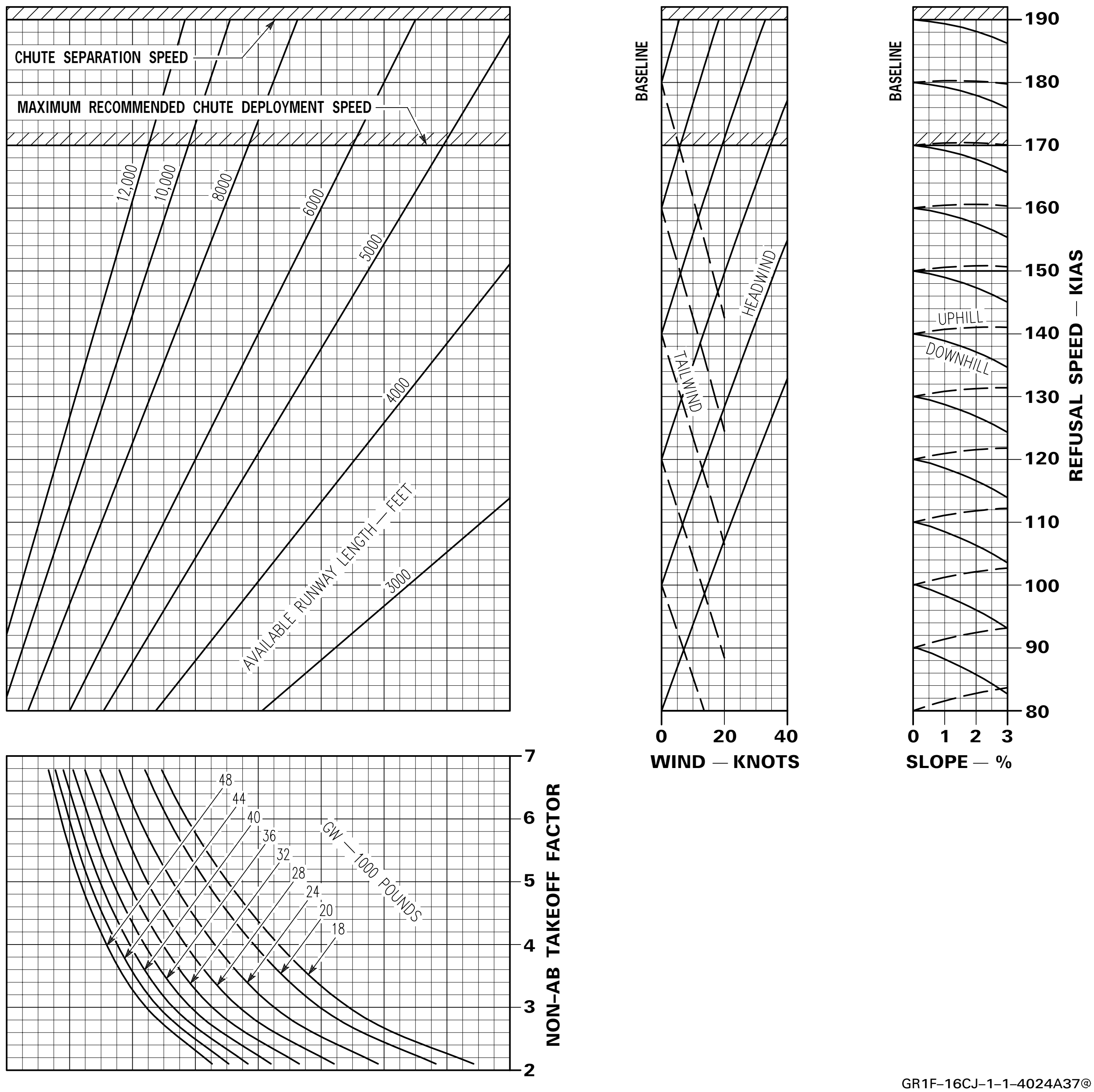


Figure B2-7. (Sheet 3)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

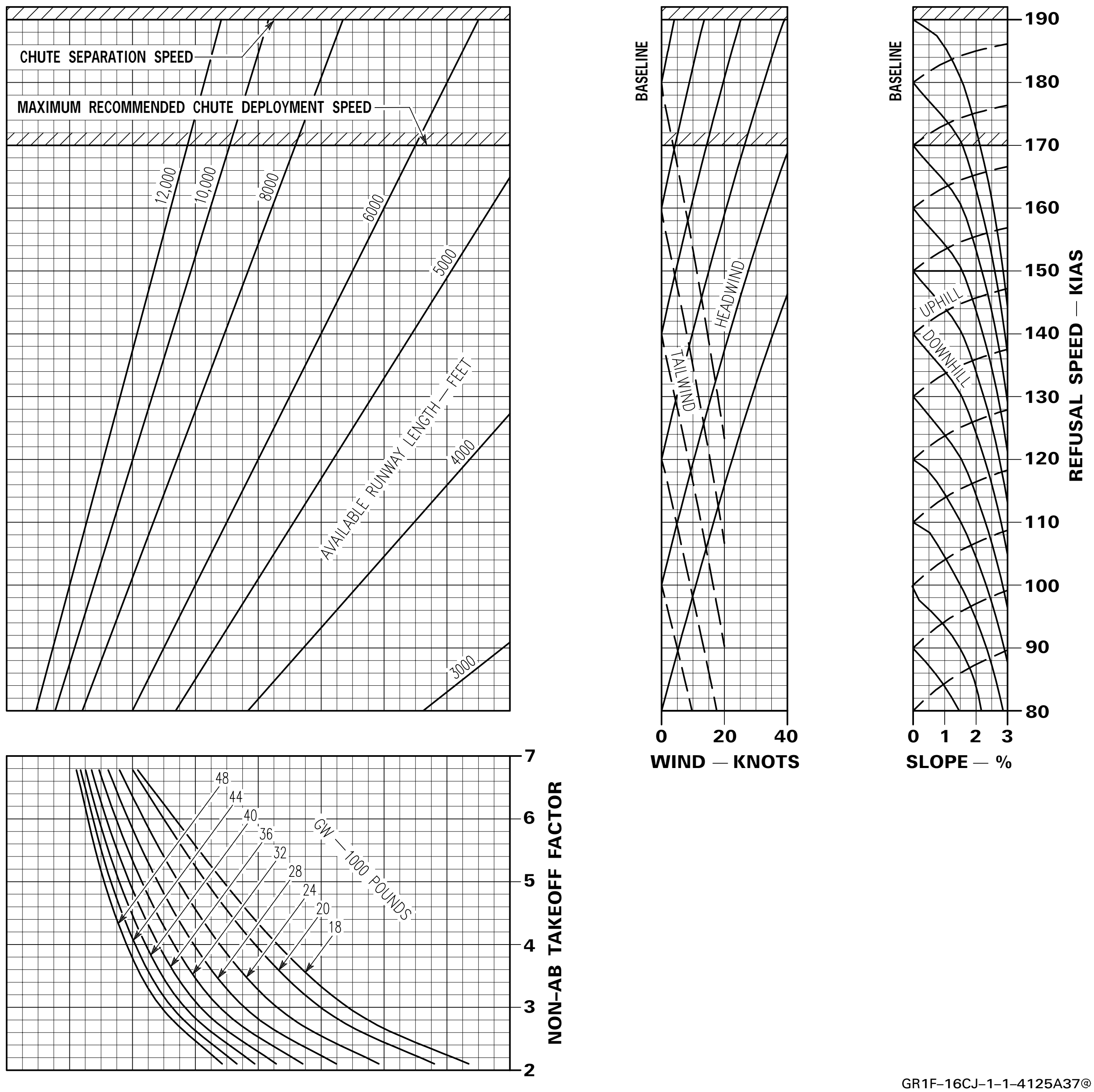


Figure B2-7. (Sheet 4)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE DRY RUNWAY REFUSAL SPEED BY 3.5 KIAS FOR ALL GW'S.

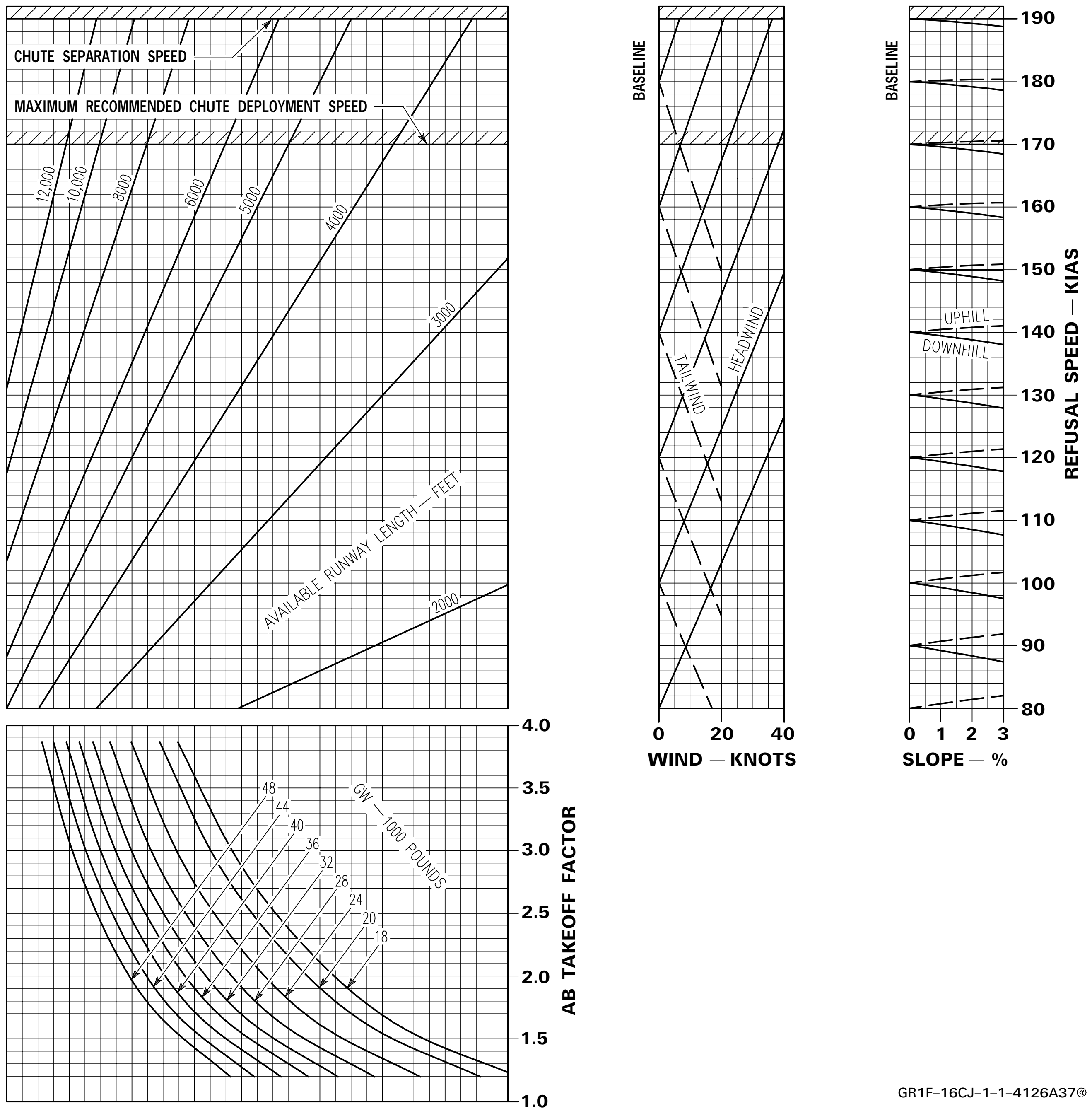


Figure B2-8. (Sheet 1)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

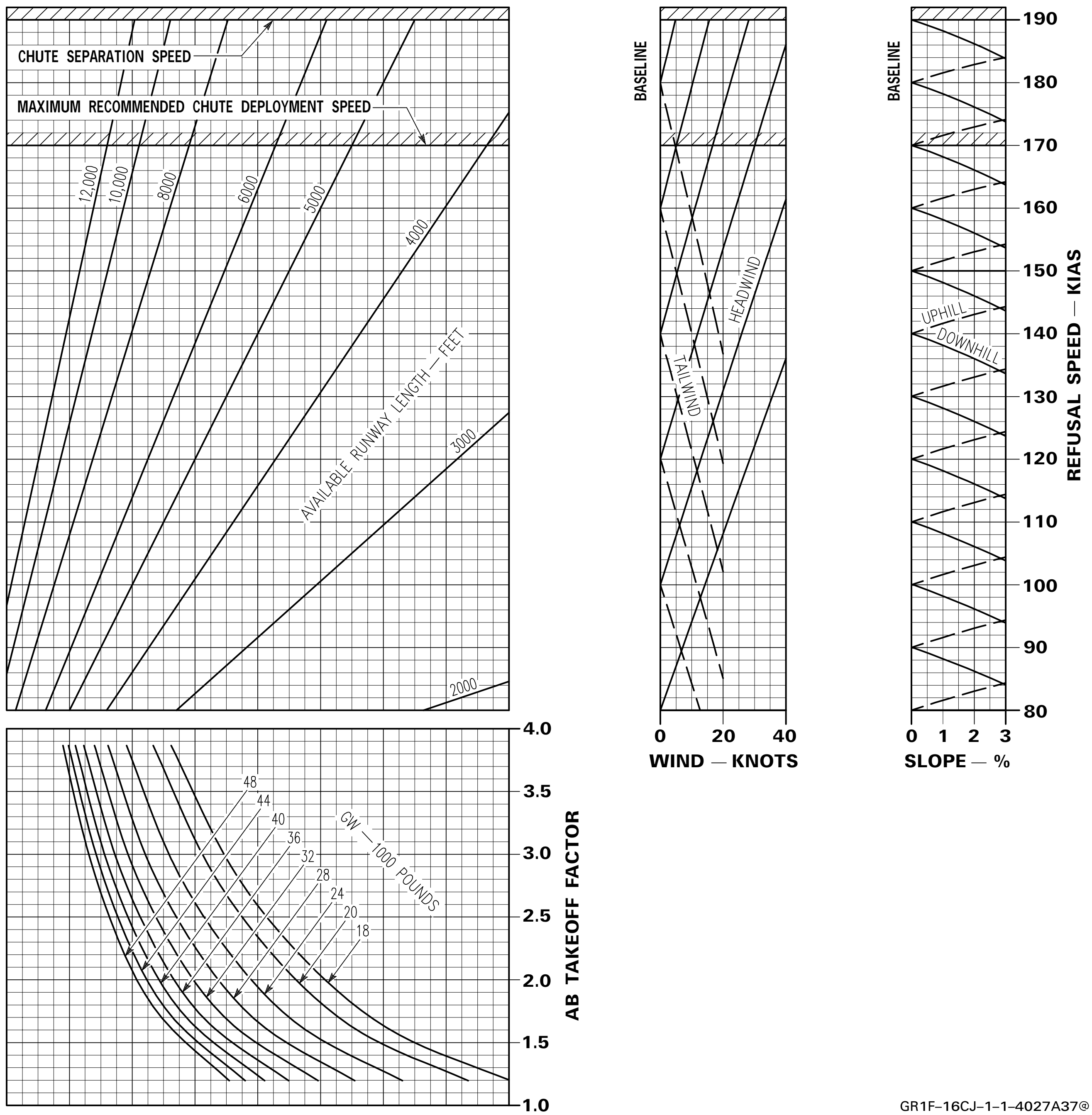
CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE WET RUNWAY REFUSAL SPEED BY 8.5 KIAS FOR ALL GW'S.



GR1F–16CJ–1–1–4027A37@

Figure B2-8. (Sheet 2)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED

ENGINE F110–GE–129

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

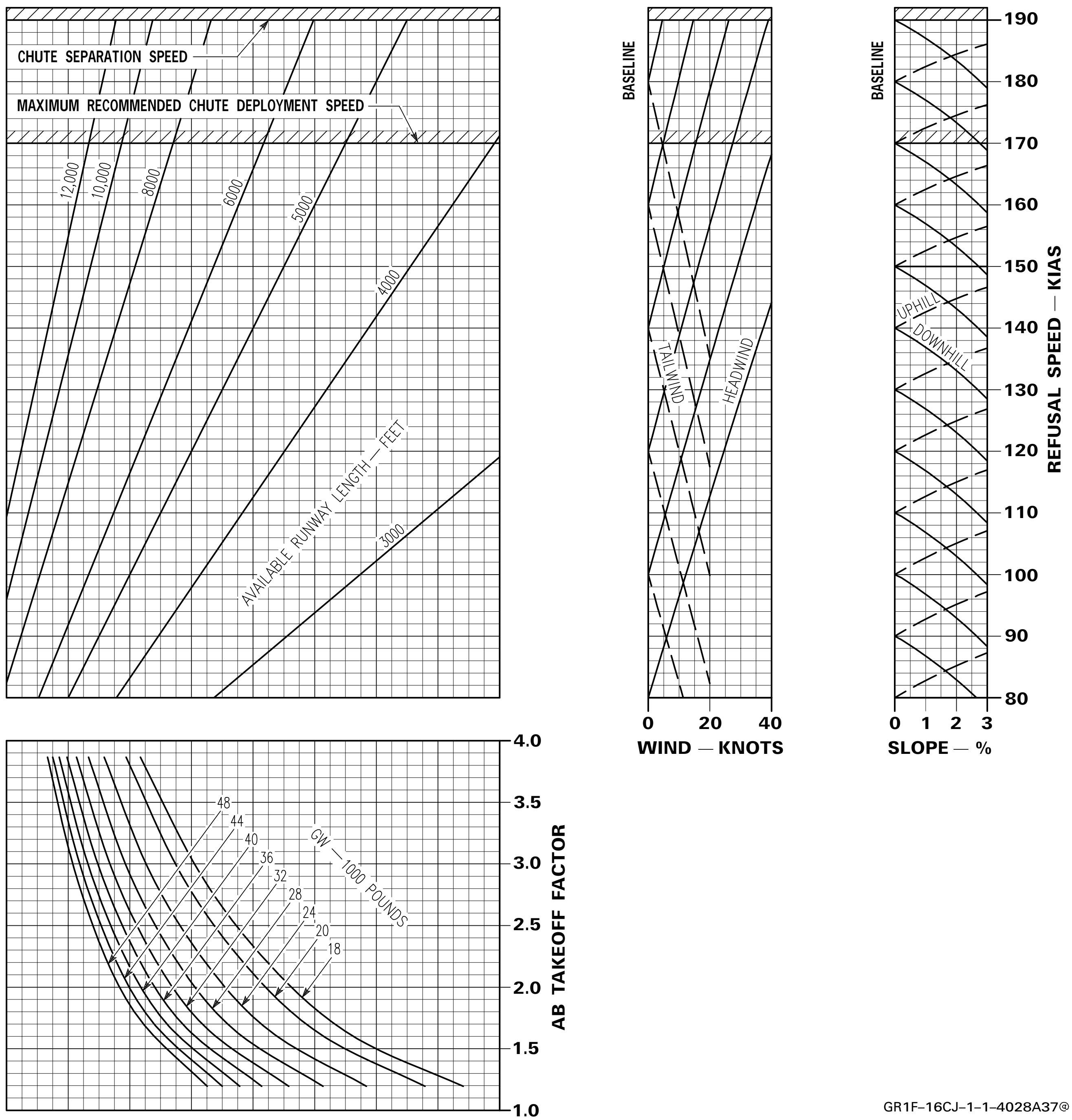


Figure B2-8. (Sheet 3)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE
- DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
  ICY (RCR=4)

NOTES:
REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE B2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

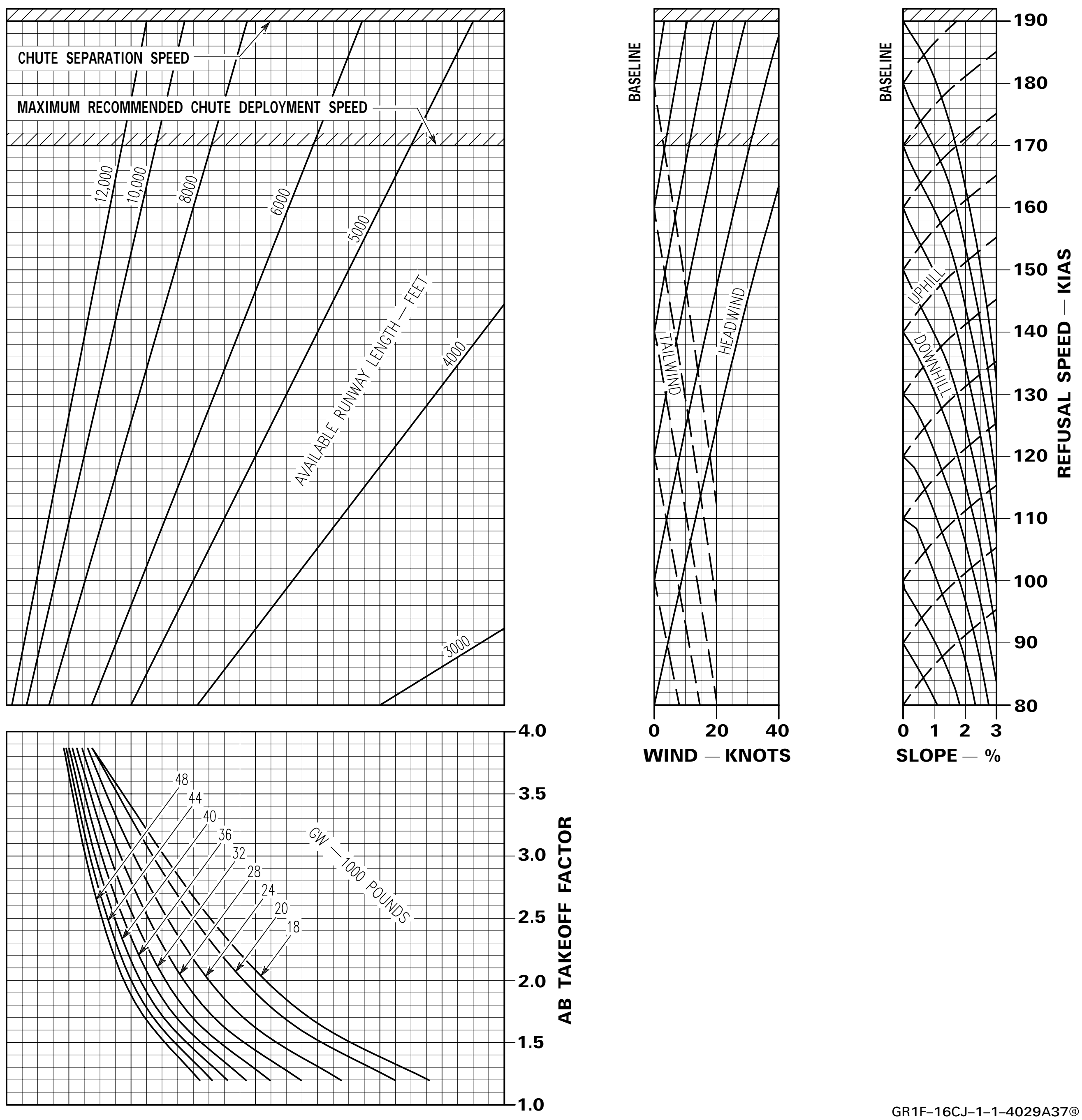


Figure B2-8. (Sheet 4)

Minimum AB Blowout Speed

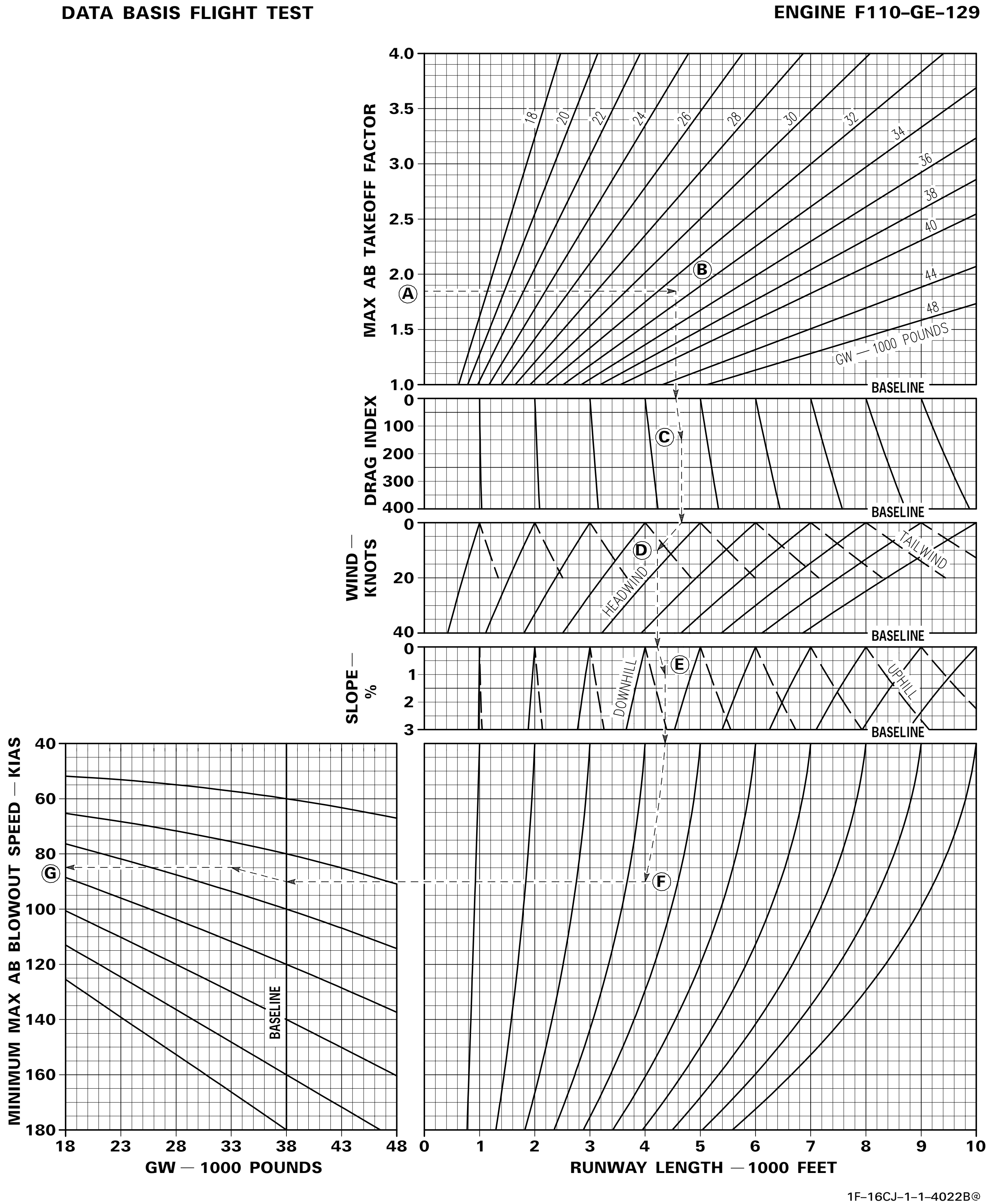


Figure B2-9.

Takeoff Roll Trim With Asymmetric Stores

DATA BASIS FLIGHT TEST

CONFIGURATION:
- LEF'S SCHEDULED
- TEF'S AT 20 DEGREES

NOTES:
- INCREASE TAKEOFF SPEED 2 KNOTS FOR EACH DOT OF ROLL TRIM APPLIED TO COMPENSATE FOR REDUCED LIFT. TAKEOFF DISTANCE INCREASES PROPORTIONATELY TO THE SPEED INCREASE.
- IT IS POSSIBLE TO EXCEED THE LATERAL TRIM AUTHORITY OF THE AIRCRAFT FOR ONSPEED TAKEOFF WITH A NET ASYMMETRIC (ROLLING) MOMENT LESS THAN AIRCRAFT TAKEOFF LIMITS. REFER TO SECTION V FOR LIMITS.

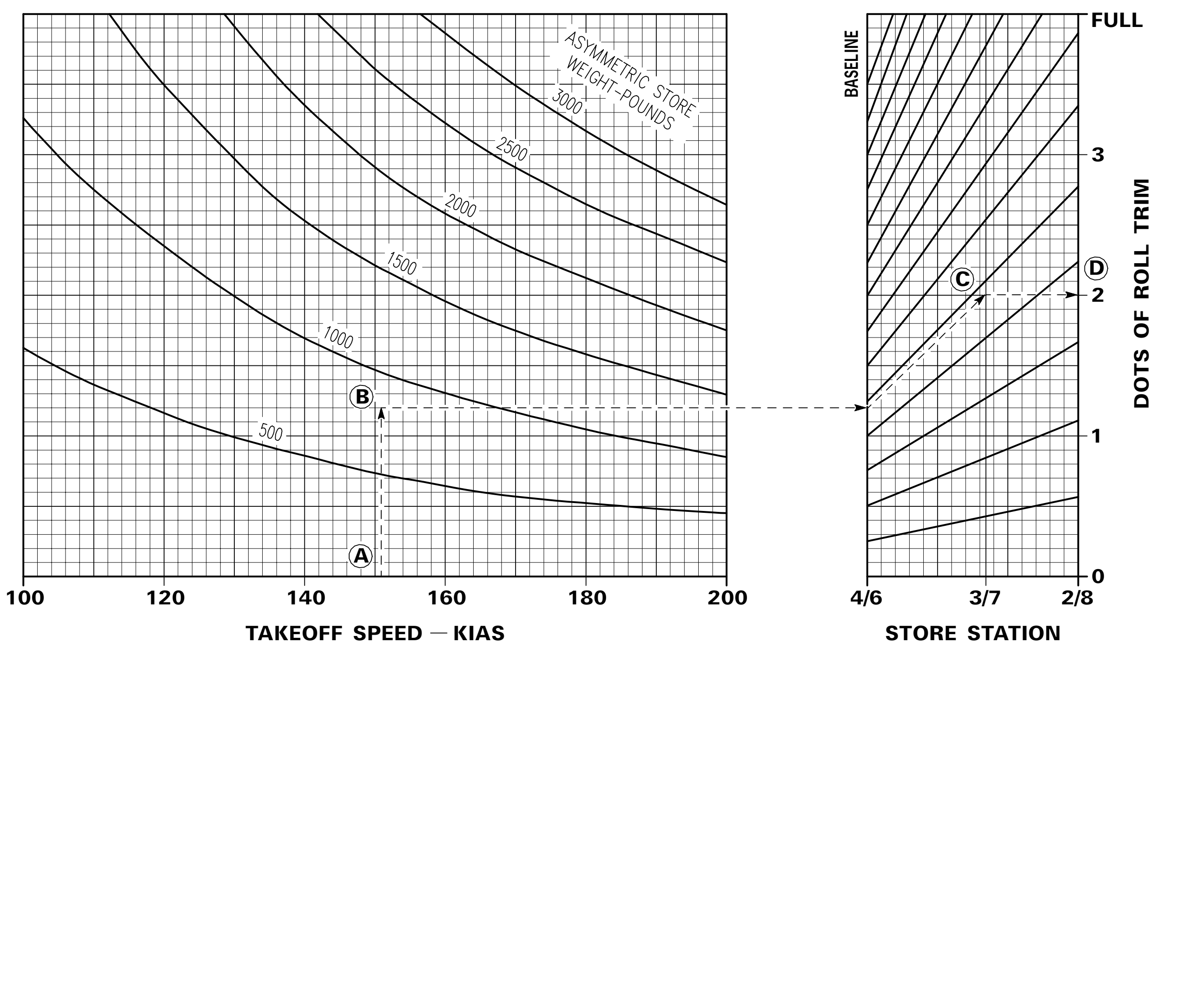


Figure B2-10.

Takeoff and Landing Crosswind Limits

NOTES:

- **CROSSWIND LIMITS FOR RCR VALUES 4–23 MAY BE OBTAINED BY INTERPOLATING BETWEEN THE LIMITS SHOWN.**
- **ENTER CHART WITH STEADY WIND TO DETERMINE HEADWIND COMPONENT AND MAXIMUM GUST VELOCITY TO DETERMINE CROSSWIND COMPONENT.**

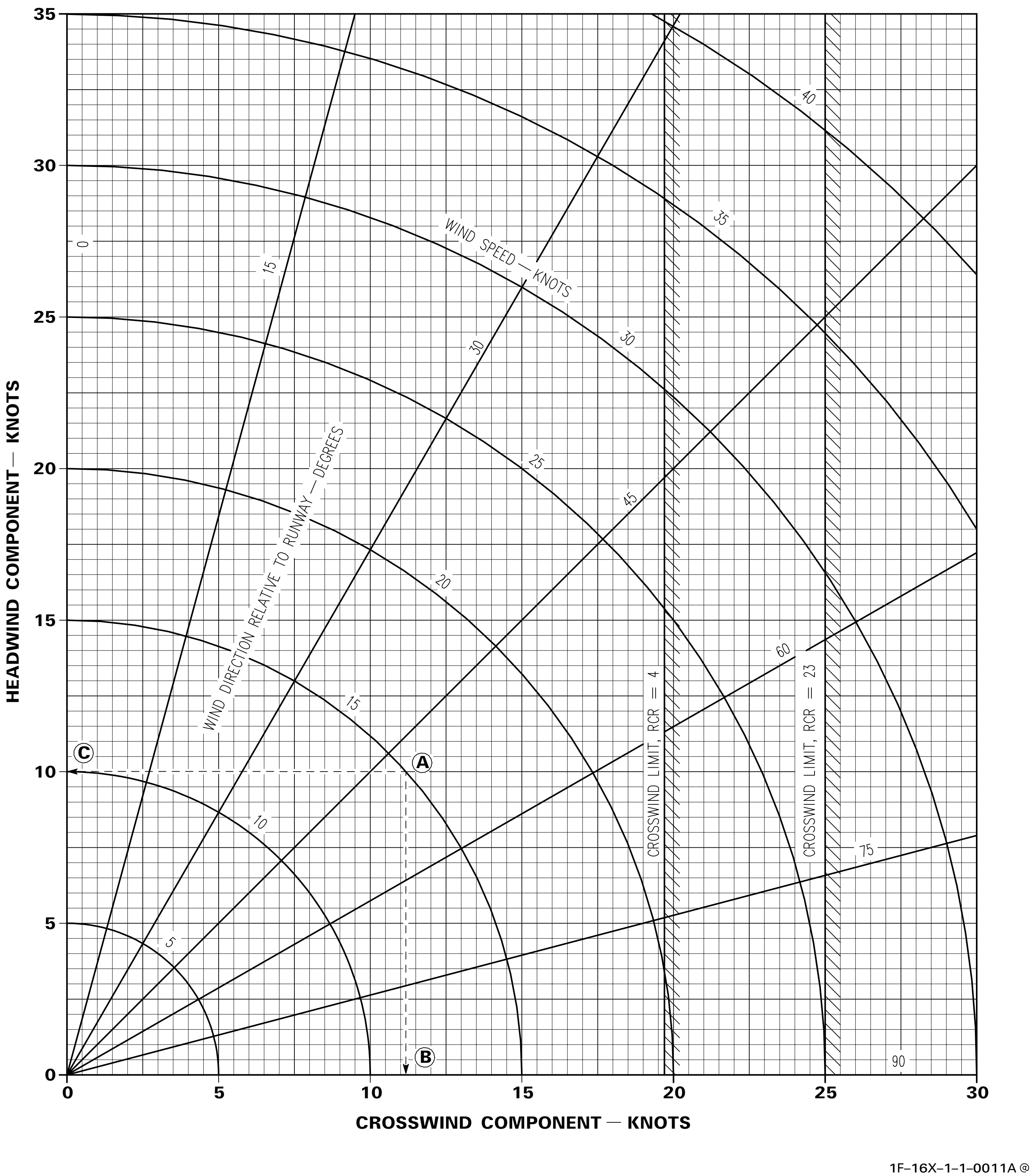


Figure B2-11.

Brake Energy Limits — Max Effort Braking

DATA BASIS ESTIMATED **ENGINE F110-GE-129**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- TEF's DOWN

CONDITIONS:

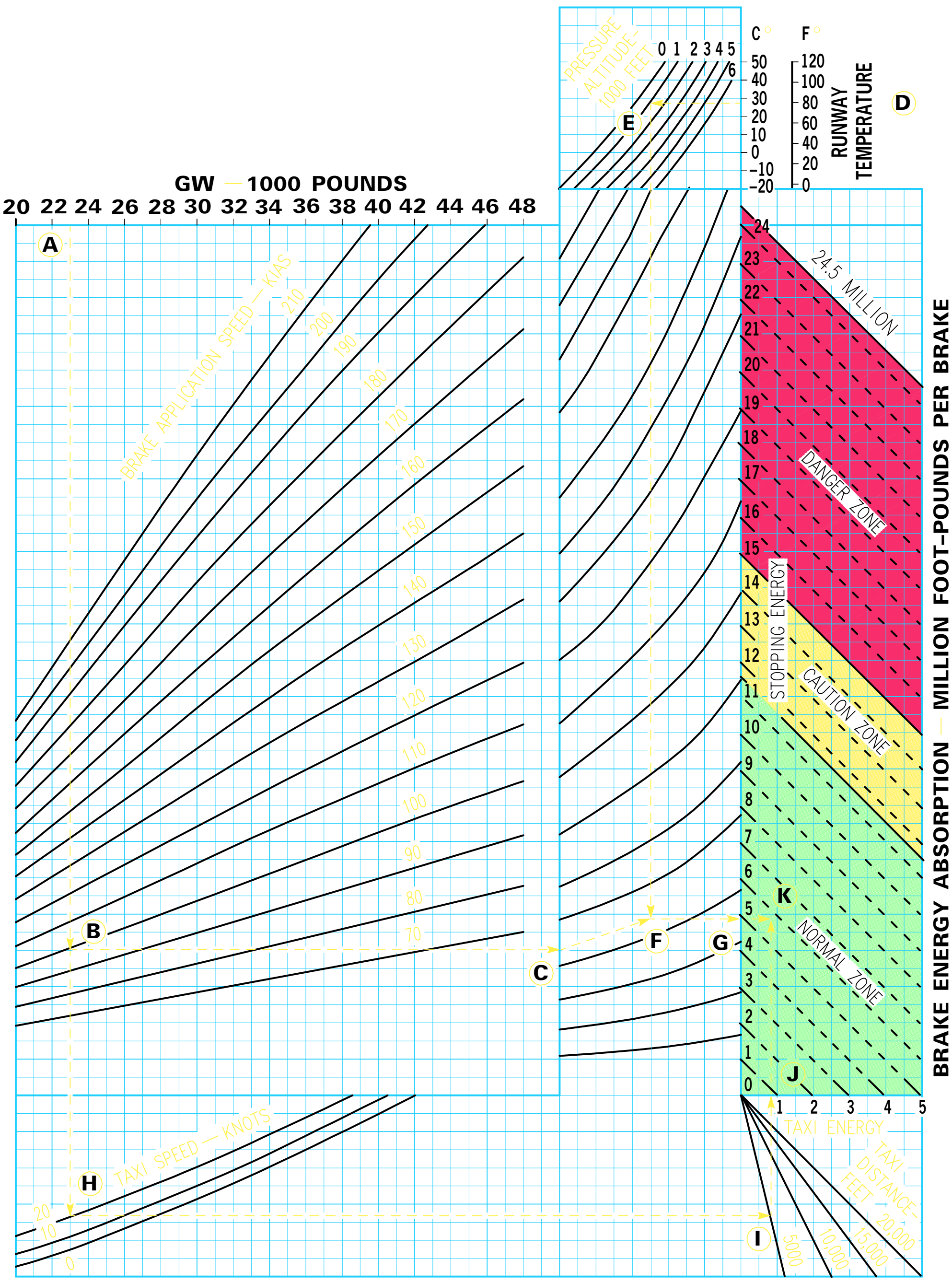
- NORMAL IDLE THRUST

CAUTION

- EXCEEDING 24.5 MILLION FOOT-POUNDS PER BRAKE CUMULATIVE TOTAL ENERGY MAY RESULT IN LOSS OF BRAKING.

NOTES:

- ADD TAILWIND COMPONENT OR SUBTRACT ONE-HALF HEADWIND COMPONENT FROM AIRSPEED WHEN BRAKES ARE APPLIED.
- FOR ABORTED TAKEOFF AT AIRSPEED GREATER THAN 100 KNOTS, ADD 2 MILLION FOOT-POUNDS PER BRAKE IF BRAKES ARE APPLIED SOONER THAN 4 SECONDS AFTER THROTTLE IS RETARDED TO IDLE.
- IF LANDING WITH ASYMMETRICAL WING LOADING, TAKE ACTION AS APPLICABLE FOR NEXT HIGHER ENERGY ZONE TO ALLOW FOR UNEQUAL BRAKE ENERGY DISTRIBUTION.



GR1F-16CJ-1-1-4025A37

Figure B2-12. (Sheet 1)

Brake Energy Limits — Max Effort Braking With Drag Chute

DATA BASIS ESTIMATED **ENGINE F110-GE-129**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- TEF'S DOWN
- DRAG CHUTE DEPLOYED BELOW 170 KIAS
- DRAG CHUTE RELEASED PRIOR TO TAXI

CONDITIONS:

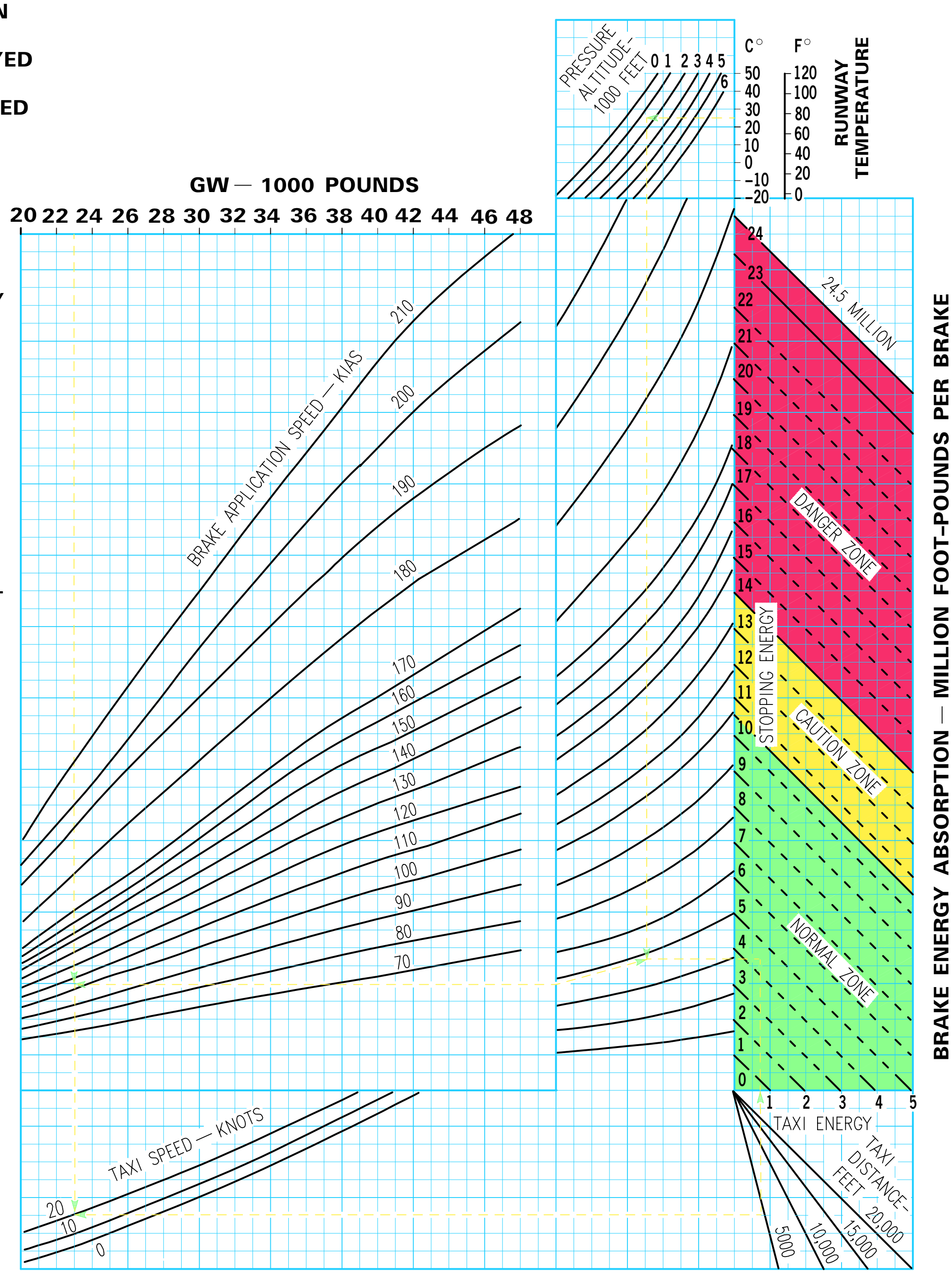
- NORMAL IDLE THRUST

CAUTION

- EXCEEDING 24.5 MILLION FOOT-POUNDS PER BRAKE CUMULATIVE TOTAL ENERGY MAY RESULT IN LOSS OF BRAKING.
- DEPLOYING DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

NOTES:

- ADD TAILWIND COMPONENT OR SUBTRACT ONE-HALF HEADWIND COMPONENT FROM AIRSPEED WHEN BRAKES ARE APPLIED.
- FOR ABORTED TAKEOFF AT AIRSPEED GREATER THAN 100 KNOTS, ADD 2 MILLION FOOT-POUNDS PER BRAKE IF BRAKES ARE APPLIED SOONER THAN 4 SECONDS AFTER THROTTLE IS RETARDED TO IDLE.
- IF LANDING WITH ASYMMETRICAL WING LOADING, TAKE ACTION AS APPLICABLE FOR NEXT HIGHER ENERGY ZONE TO ALLOW FOR UNEQUAL BRAKE ENERGY DISTRIBUTION.



GR1F-16CJ-1-1-4026A37

Figure B2-12. (Sheet 2)

Brake Energy Limits — Max Effort Braking

ACTION TO BE TAKEN AS APPLICABLE TO THE AMOUNT OF BRAKE ENERGY ABSORBED

DANGER ZONE

1. REFER TO T.O. GR1F-16CJ-1, HOT BRAKES.
2. USE MODERATE BRAKING BELOW 25 KNOTS GROUNDSPEED AND MAINTAIN FORWARD MOTION.
3. THE SIDE AREA WITHIN 300 FEET OF THE MLG TIRES SHOULD BE REGARDED AS UNSAFE FOR 45 MINUTES AFTER AIRCRAFT HAS STOPPED UNLESS THE FUSIBLE PLUGS HAVE RELIEVED TIRE PRESSURE.
4. HYDRAULIC FLUID OR TIRE FIRE IS IMMINENT. APPROACH MLG FROM FRONT OR REAR FOR FIREFIGHTING PURPOSES ONLY. APPLY EXTINGUISHING AGENT AS FOG OR FOAM DIRECTLY ON THE WHEELS.

CAUTION ZONE

1. REFER TO T.O. GR1F-16CJ-1, HOT BRAKES.
2. THE SIDE AREA WITHIN 300 FEET OF THE MLG TIRES SHOULD BE REGARDED AS UNSAFE FOR 45 MINUTES AFTER AIRCRAFT HAS STOPPED UNLESS THE FUSIBLE PLUGS HAVE RELIEVED TIRE PRESSURE.
3. DO NOT ATTEMPT TAKEOFF UNTIL BRAKE HOUSINGS, WHEEL RIMS, AND TIRES HAVE COOLED ENOUGH TO PERMIT AT LEAST 15 SECONDS OF CONTINUOUS BARE HAND CONTACT. THIS COOLING PERIOD IS TO PREVENT POSSIBLE TIRE FAILURE DURING TAKEOFF OR IN FLIGHT.

NORMAL ZONE

1. DO NOT ENGAGE PARKING BRAKE IF AIRCRAFT HAS FLOWN IN THE PAST 2 HOURS OR IF CUMULATIVE TOTAL ENERGY EXCEEDS 9 MILLION FOOT- POUNDS PER BRAKE. OTHER ACTION TO BE TAKEN IS DETERMINED BY CUMULATIVE TOTAL ENERGY AND AMBIENT TEMPERATURE, AS INDICATED BY SAFE TIRE BEAD TEMPERATURE CHART.
2. IF CUMULATIVE TOTAL ENERGY EXCEEDS THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE:
   A. DO NOT ATTEMPT TAKEOFF UNTIL BRAKE HOUSINGS, WHEEL RIMS, AND TIRES HAVE COOLED ENOUGH TO PERMIT AT LEAST 15 SECONDS OF CONTINUOUS BARE HAND CONTACT. THIS COOLING PERIOD IS TO PREVENT POSSIBLE TIRE FAILURE DURING TAKEOFF OR IN FLIGHT.

   B. A COOLING PERIOD OF APPROXIMATELY 30 MINUTES PLUS AN ADDITIONAL 30 MINUTES FOR EACH 1 MILLION FOOT-POUNDS BRAKE ENERGY ABOVE THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE IS REQUIRED.
3. IF CUMULATIVE TOTAL ENERGY DOES NOT EXCEED THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE AND THE AIRCRAFT HAS NOT FLOWN IN THE PAST 2 HOURS, PARKING BRAKE MAY BE ENGAGED AND NO BRAKE COOLING IS REQUIRED PRIOR TO SUBSEQUENT TAKEOFF. DETERMINE MAXIMUM BRAKE APPLICATION SPEED IN CASE SUBSEQUENT TAKEOFF IS ABORTED BY SUBTRACTING CUMULATIVE TOTAL ENERGY FROM THE 23.5 MILLION FOOT-POUNDS.

Figure B2-12. (Sheet 3)

Safe Tire Bead Temperature — For Quick Turnaround

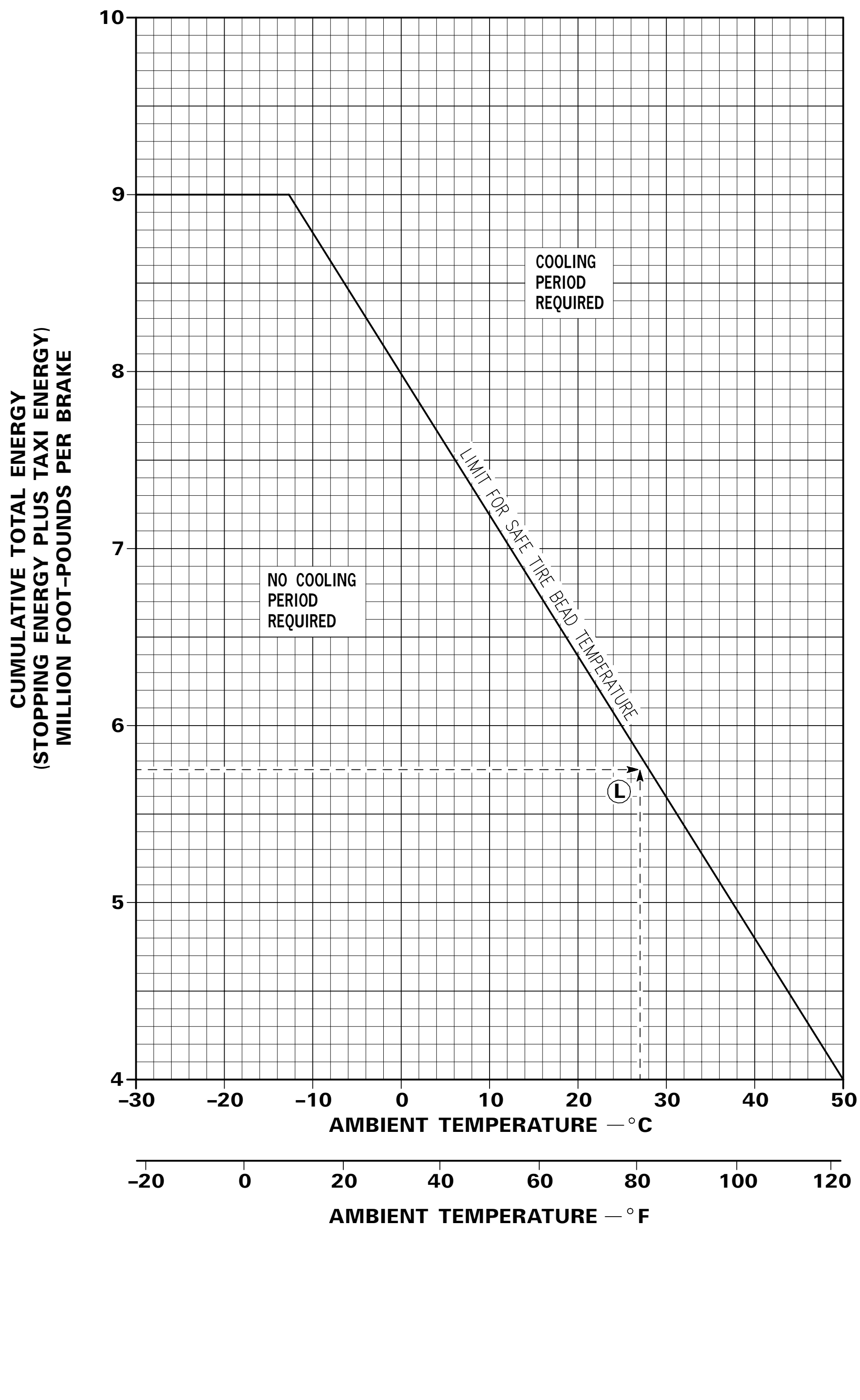


Figure B2-13.

PART 3 – CLIMB

TABLE OF CONTENTS

LIST OF CHARTS

Data needed to plan for MIL and MAX AB climbs is contained in this part, including climbout from takeoff, climb to cruise, and ceiling altitudes. Refer to Part 8 for information regarding combat ceiling and climb to combat ceiling.

GROUND OPERATION FUEL CONSUMPTION

Idle fuel flow is approximately 20 pounds per minute. An average of 25 pounds per minute is used for ground operation.

CLIMBOUT FUEL, TIME, AND DISTANCE

Figures B3-1 and B3-2 contain data describing fuel, time, and distance from end of runway brake release to climb airspeed. Effects of temperature, GW, altitude, and drag index are shown. A constant throttle position (MIL or MAX AB) from brake release to MIL or MAX AB climb speed is used. After takeoff, a constant pitch attitude of 12 degrees is held until 2500 feet AGL. A level acceleration to climb speed is then made. In some cases, climb airspeed will be reached prior to gaining 2500 feet AGL. This technique was developed for performance calculations only and not as an operational procedure.

REFER TO FIGURES B3-1 AND B3-2.

Enter chart with temperature (A), proceed horizontally to altitude (B), and then down to intersect GW (C). From there, proceed horizontally to drag baseline and parallel nearest guideline to drag index (D). Finally, proceed horizontally to read fuel consumed (E), time (F), and distance (G).

SAMPLE PROBLEM (MIL, FIGURE B3-1).

A.	Temperature	=	40°C
B.	Altitude	=	2000 feet
C.	GW	=	33,000 pounds
D.	Drag index	=	150
E.	Fuel consumed	=	358 pounds
F.	Time	=	2.1 minutes
G.	Distance	=	8.9 nm

CRUISE CEILINGS AND OPTIMUM CRUISE ALTITUDE

MIL cruise ceiling, MIL service ceiling, and optimum cruise altitude are shown in figure B3-3. All data is based on use of optimum cruise mach number. A correction factor to adjust MIL cruise ceiling to service ceiling is given on the chart.

REFER TO FIGURE B3-3.

Enter upper portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read cruise altitude (C). Enter lower portion of chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read MIL cruise ceiling (D).

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Drag index	=	150
C.	Optimum cruise altitude	=	34,900 feet
D.	MIL cruise ceiling (300 fpm)	=	36,200 feet
E.	MIL service ceiling (100 fpm)	=	36,850 feet

MIL CLIMB

Figure B3-4 contains MIL climb data. Fuel consumed data is shown in sheet 1 and time and distance data is shown in sheet 2. The data is for climbs starting at sea level, but performance data for climbs from any altitude to a higher altitude may also be determined. The climb schedules are defined by airspeed/mach number. Climb at the scheduled airspeed to the scheduled mach number, then maintain the mach number to the desired altitude. When starting a climb at an altitude above the airspeed/mach number transition point, climb at the scheduled mach number. The schedules are tabulated as a function of drag index and are selected to maintain maximum fuel efficiency while still providing near maximum rate of climb. To obtain data for climb to cruise ceiling, use the dashed cruise ceiling drag index lines.

REFER TO FIGURE B3-4.

Enter sheet 1 of chart at initial GW (A), proceed horizontally to final altitude (B), vertically to drag index (C), and horizontally to air deviation temperature (D). Continue horizontally to read fuel consumed (E). If initial altitude is above sea level, reenter chart at initial GW (A), proceed horizontally to initial altitude (F), and continue as above to read fuel used (G). The difference between fuel consumed to final altitude and fuel used to initial altitude is the fuel used to climb from initial to final altitude. Climb time and distance are found in a similar manner from sheet 2.

SAMPLE PROBLEM.

MIL climb to optimum cruise altitude.

A.	Initial GW	=	33,000 pounds
B.	Final altitude	=	34,900 feet (cruise altitude for 33,000 pounds, drag index = 150)
C.	Drag index	=	150
D.	Air temperature deviation	=	+10°C
E.	Fuel consumed to final altitude	=	1087 pounds
F.	Initial altitude	=	2500 feet
G.	Fuel consumed to initial altitude	=	68 pounds
•	Fuel consumed to climb 1087 – 68	=	1019 pounds

Note that the cruise altitude used above is based on an initial climb GW of 33,000 pounds. This cruise altitude should be adjusted to account for the fuel consumed during climb and the climb fuel recomputed. Initial GW is unchanged.

A.	Initial GW	=	33,000 pounds
H.	Revised final altitude	=	35,550 feet based on end-of-climb weight (33,000 – 1019 = 31,981 from figure B3-3)
C.	Drag index	=	150
D.	Air temperature deviation	=	+10°C
I.	Fuel consumed to final altitude	=	1142 pounds
F.	Initial altitude	=	2500 feet
G.	Fuel consumed to initial altitude	=	68 pounds
•	Fuel consumed in climb	=	1142 – 68 =1074 pounds
•	Distance in climb	=	75 – 3 = 72 nm
•	Time in climb	=	9.6 – 0.4 = 9.2 minutes
•	Climb speed (for drag index = 150)	=	390 KIAS/0.82 mach

MAX AB CLIMB

Figure B3-5, sheets 1 and 2, presents MAX AB climb data. The climb schedule given on sheet 1 results in minimum time-to-climb to altitude at subsonic speeds.

REFER TO FIGURE B3-5.

Refer to instructions under MIL CLIMB, above.

MIL Climbout Fuel, Time, and Distance

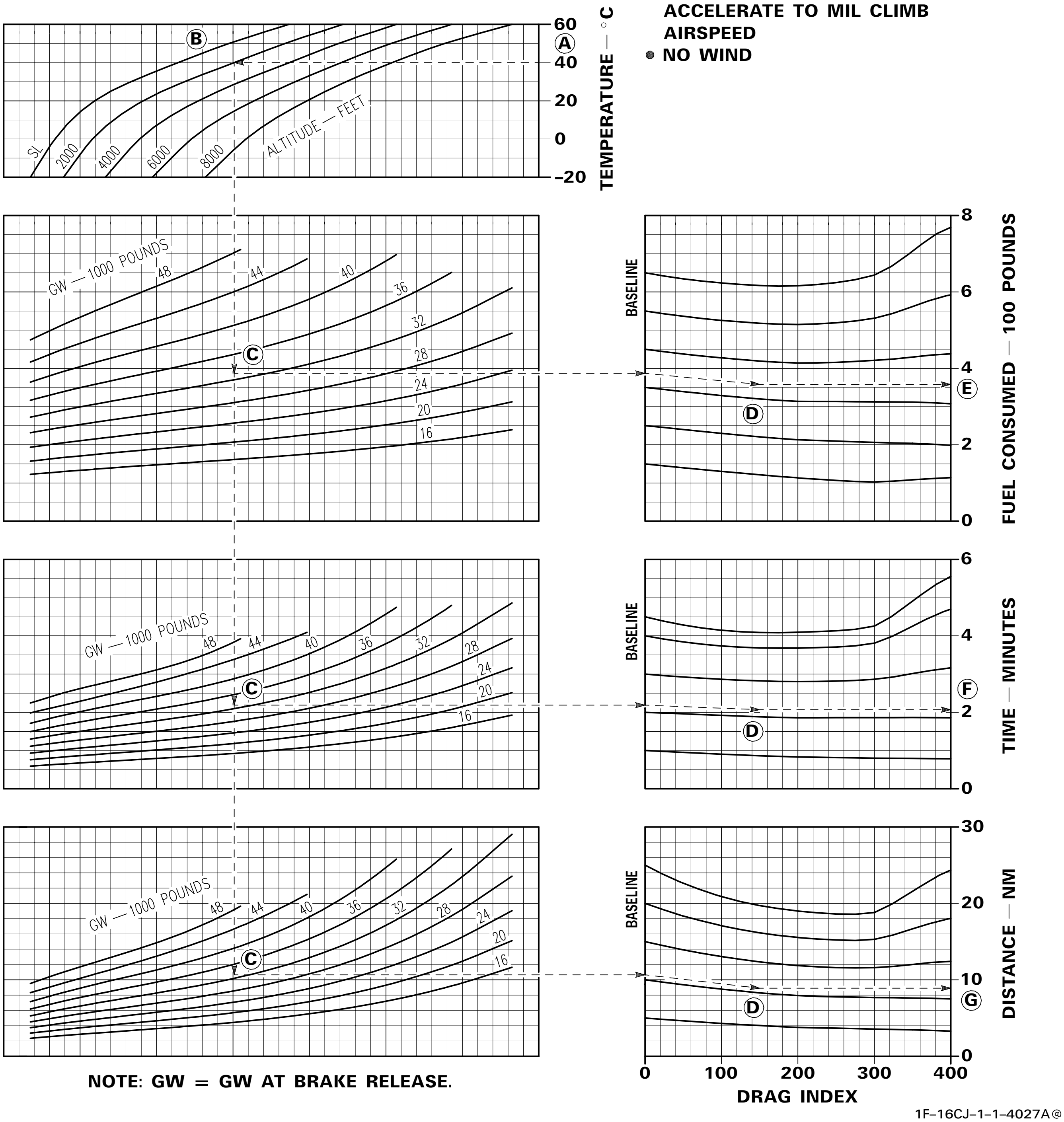
DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE TO MIL CLIMB AIRSPEED
- NO WIND



NOTE: GW = GW AT BRAKE RELEASE.

1F–16CJ–1–1–4027A@

Figure B3-1.

MAX AB Climbout Fuel, Time, and Distance

DATA BASIS FLIGHT TEST

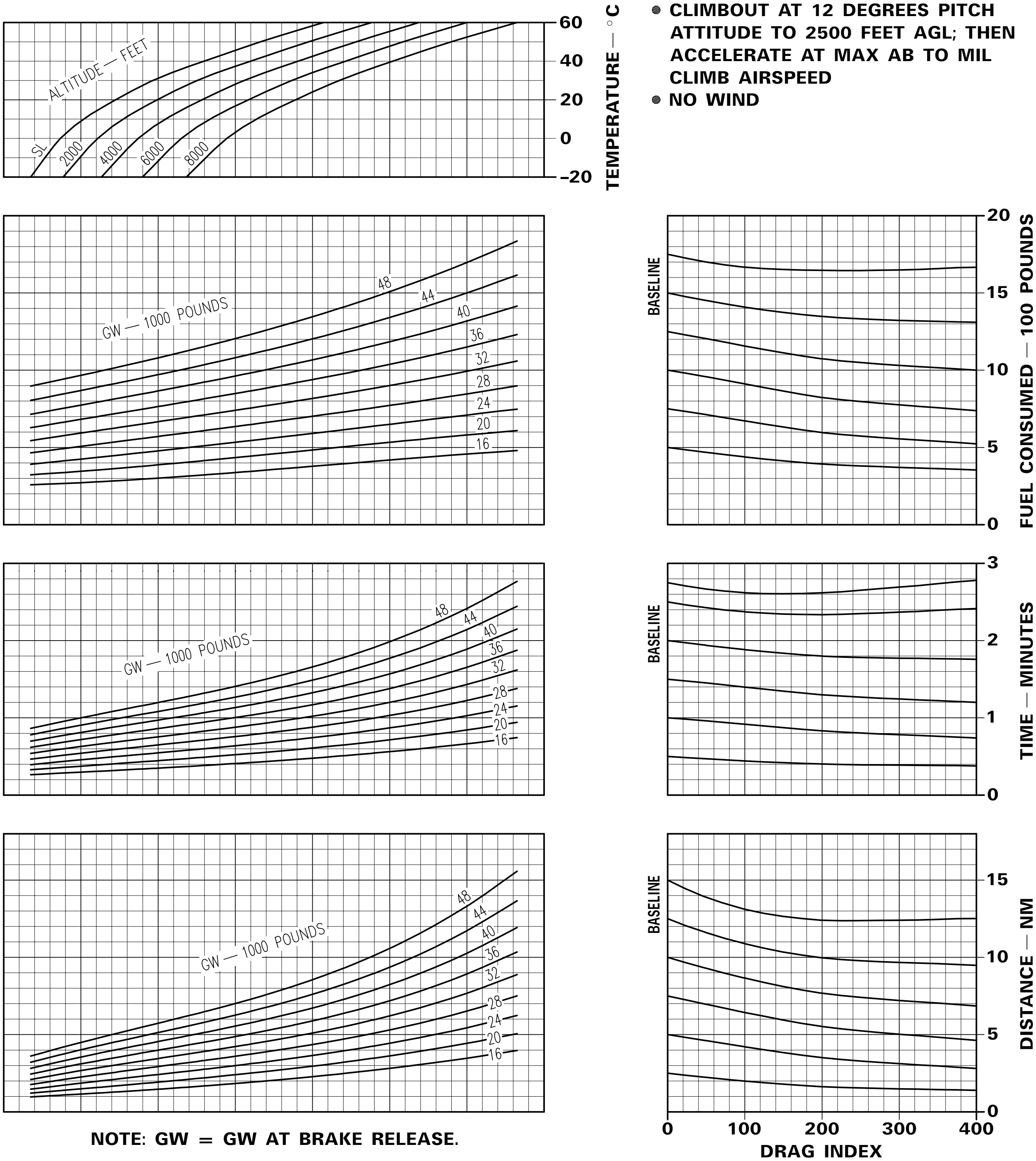
ENGINE F110–GE–129

CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE AT MAX AB TO MIL CLIMB AIRSPEED
- NO WIND



NOTE: GW = GW AT BRAKE RELEASE.

1F–16CJ–1–1–4028A@

Figure B3-2. (Sheet 1)

MAX AB Climbout Fuel, Time, and Distance

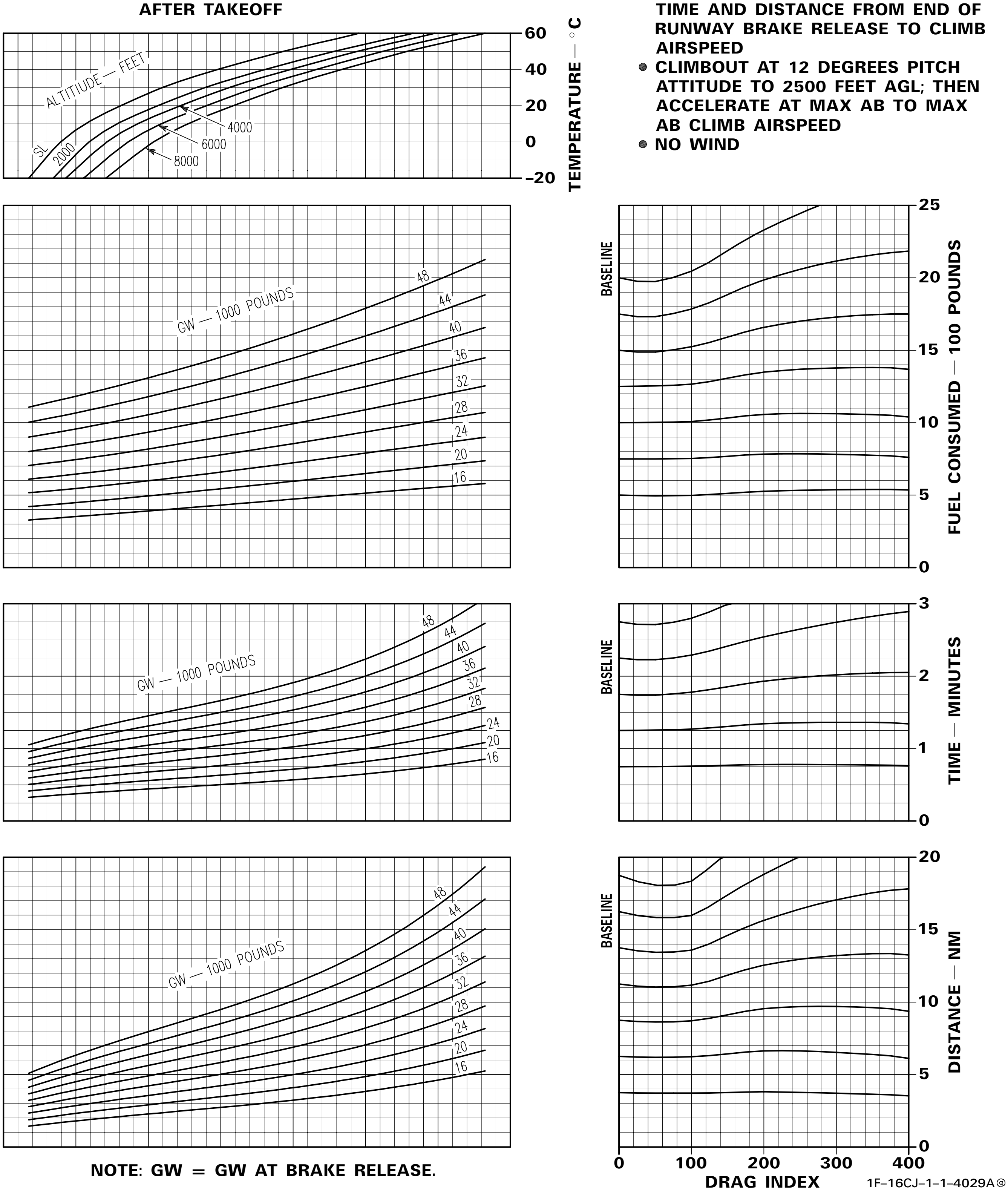
DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE AT MAX AB TO MAX AB CLIMB AIRSPEED
- NO WIND



NOTE: GW = GW AT BRAKE RELEASE.

Figure B3-2. (Sheet 2)

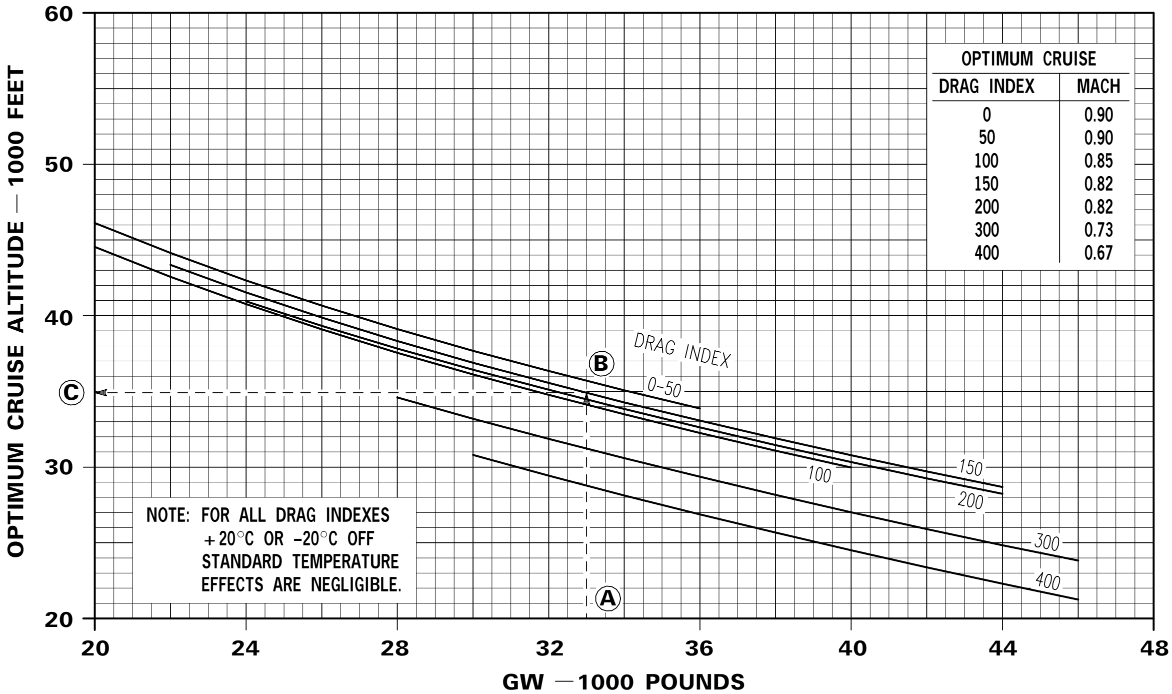
Cruise Ceilings and Optimum Cruise Altitude

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

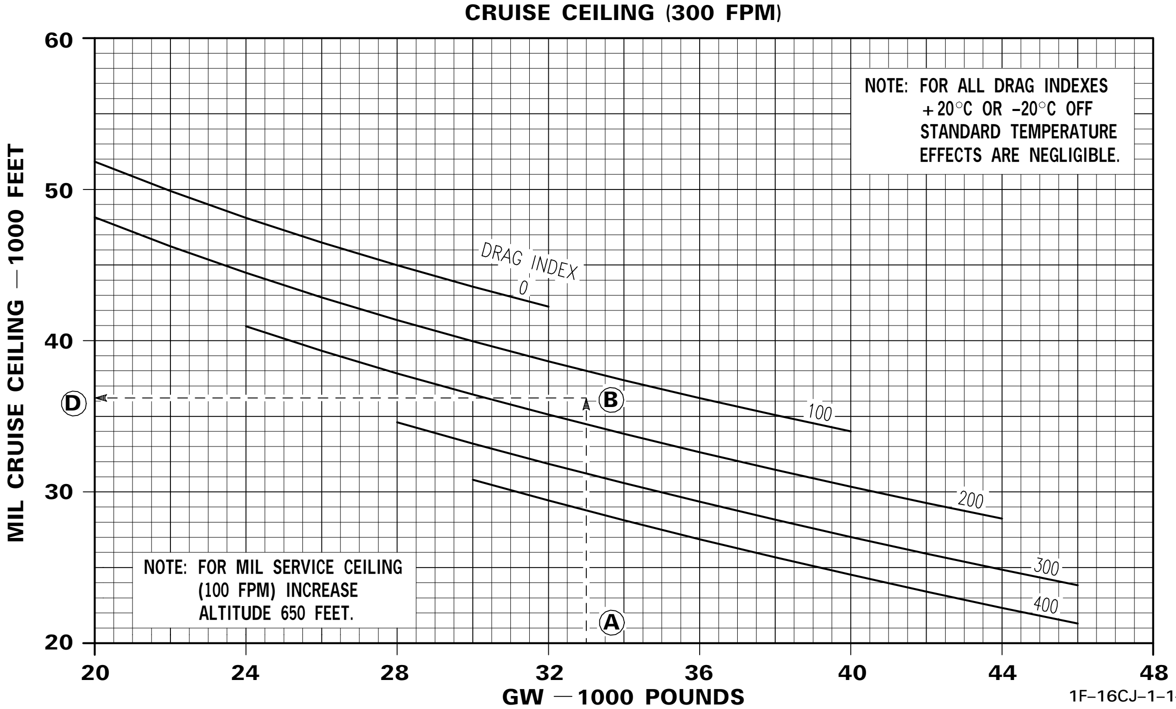
CONDITIONS:

- STANDARD DAY
- OPTIMUM CRUISE MACH NUMBER

OPTIMUM CRUISE ALTITUDE



CRUISE CEILING (300 FPM)



1F–16CJ–1–1–4030A@

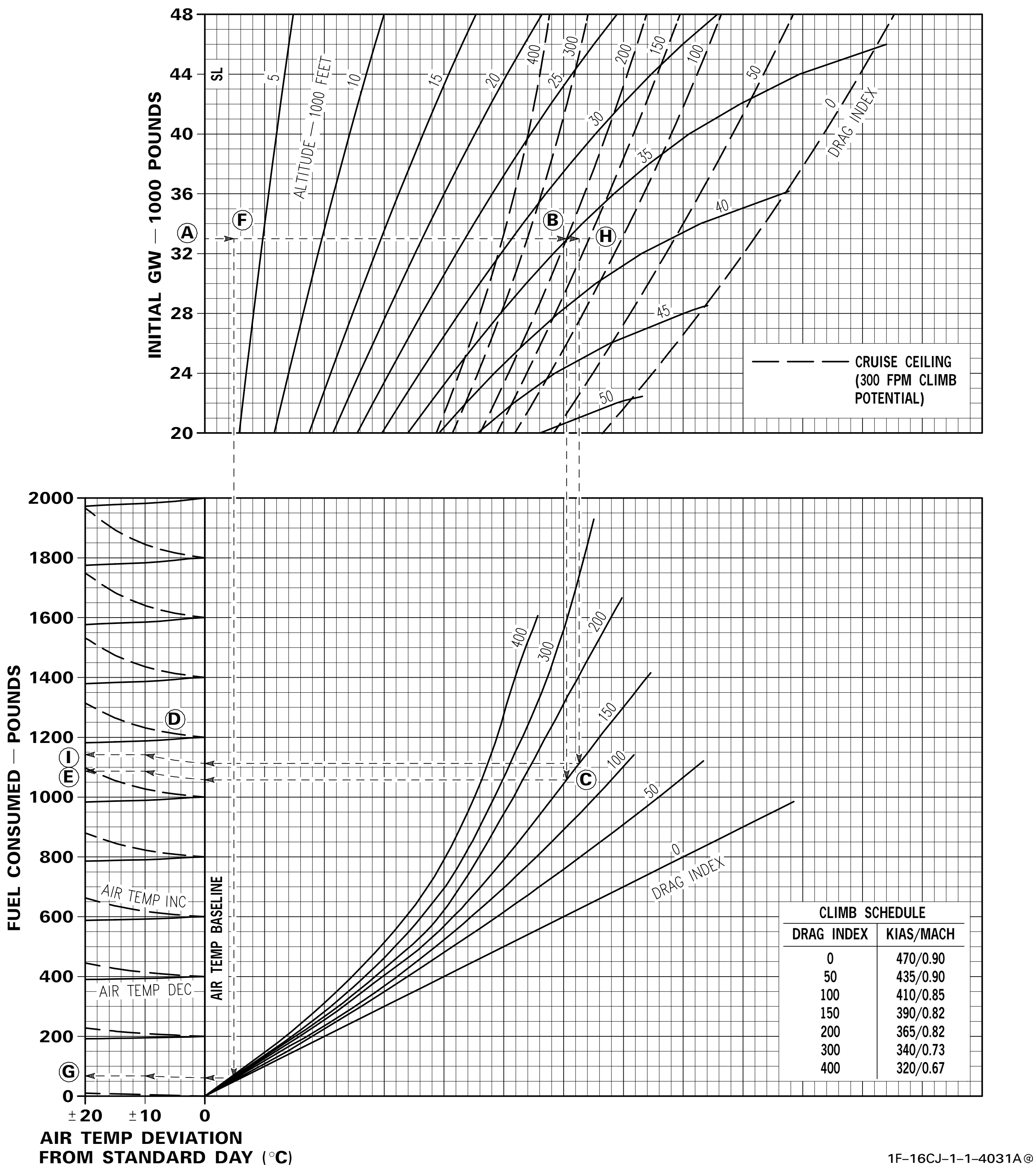
Figure B3-3.

MIL Climb — Fuel Consumed

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONDITIONS:

- **STANDARD DAY**



CLIMB SCHEDULE

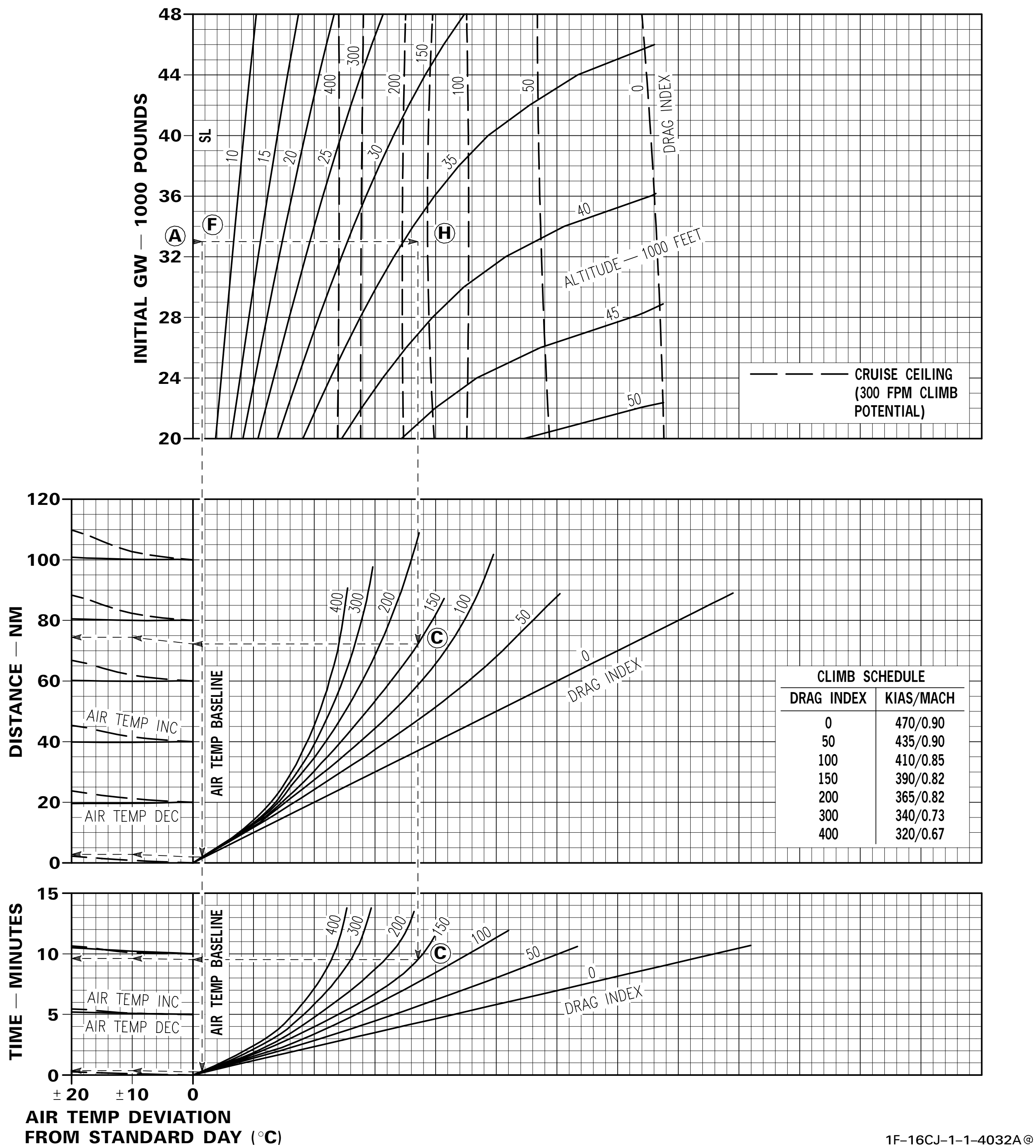
DRAG INDEX	KIAS/MACH
0	470/0.90
50	435/0.90
100	410/0.85
150	390/0.82
200	365/0.82
300	340/0.73
400	320/0.67

Figure B3-4. (Sheet 1)

MIL Climb — Distance and Time

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONDITIONS:
- **STANDARD DAY**



CLIMB SCHEDULE

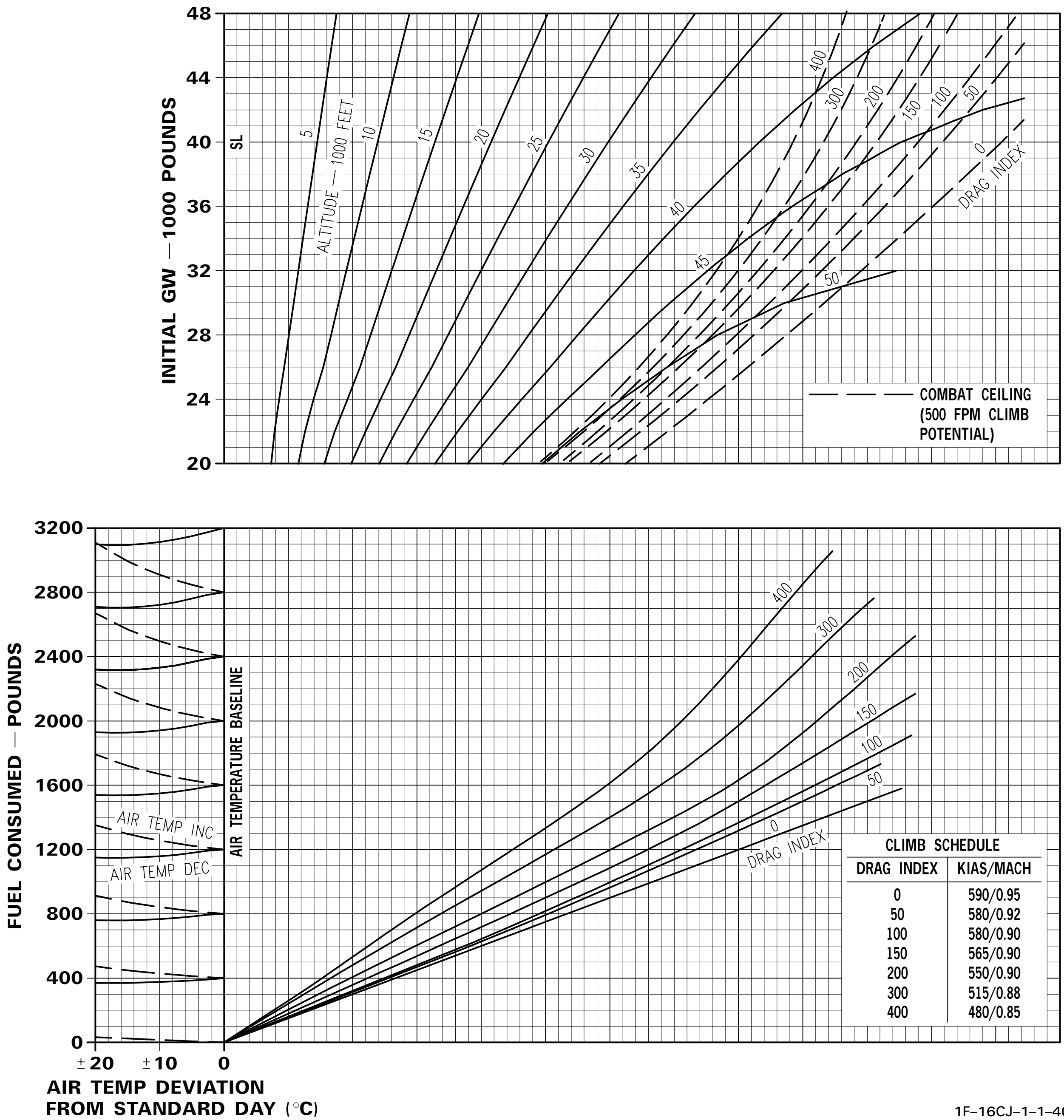
DRAG INDEX	KIAS/MACH
0	470/0.90
50	435/0.90
100	410/0.85
150	390/0.82
200	365/0.82
300	340/0.73
400	320/0.67

Figure B3-4. (Sheet 2)

MAX AB Climb — Fuel Consumed

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONDITIONS:
- **STANDARD DAY**



CLIMB SCHEDULE

DRAG INDEX	KIAS/MACH
0	590/0.95
50	580/0.92
100	580/0.90
150	565/0.90
200	550/0.90
300	515/0.88
400	480/0.85

1F–16CJ–1–1–4033A@

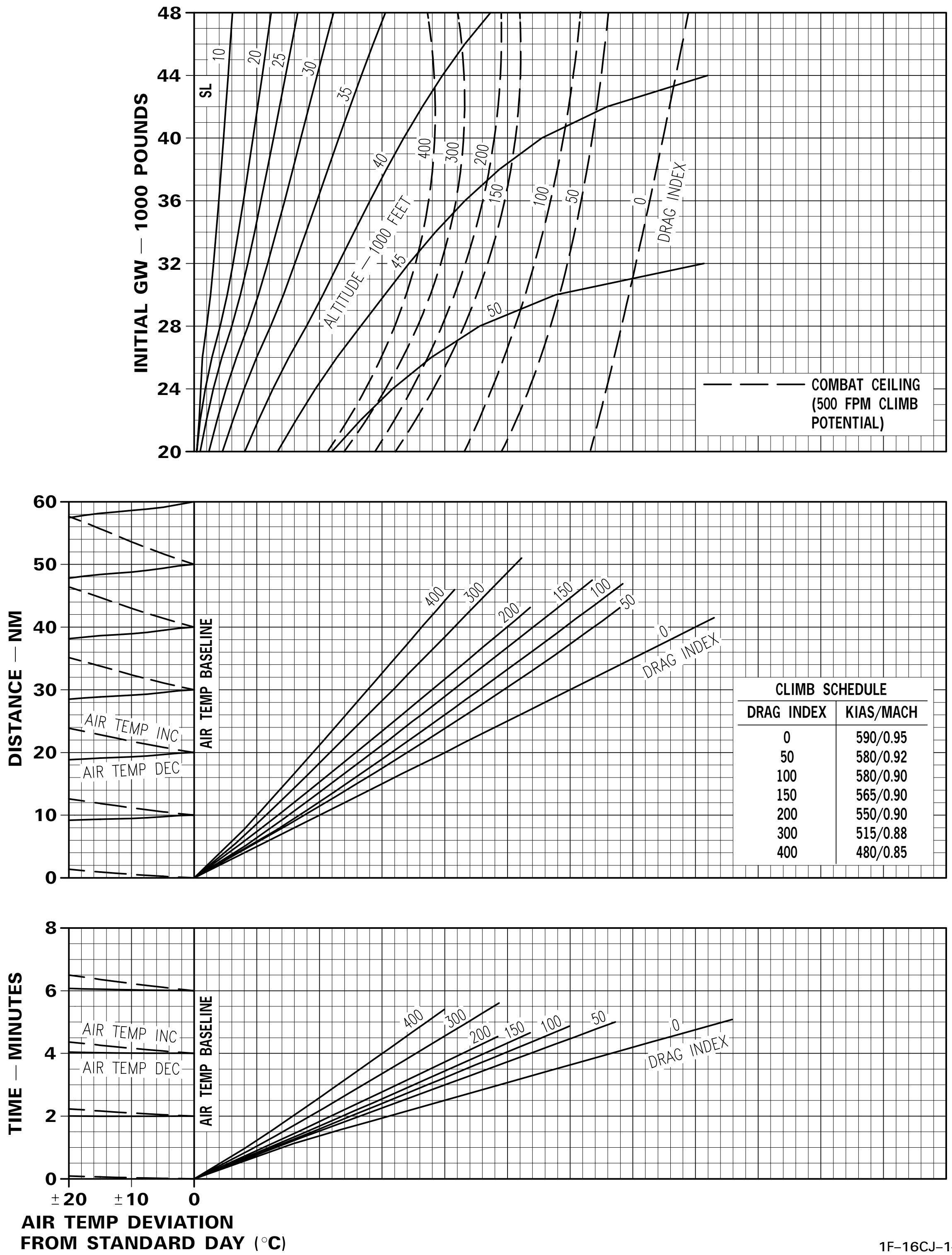
Figure B3-5. (Sheet 1)

MAX AB Climb — Distance and Time

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONDITIONS:

- **STANDARD DAY**



CLIMB SCHEDULE

DRAG INDEX	KIAS/MACH
0	590/0.95
50	580/0.92
100	580/0.90
150	565/0.90
200	550/0.90
300	515/0.88
400	480/0.85

1F–16CJ–1–1–4034A@

Figure B3-5. (Sheet 2)

PART 4 — CRUISE

TABLE OF CONTENTS

LIST OF CHARTS

CRUISE DATA

The cruise data enables the mission planner to calculate the optimum cruise performance available for most combinations of flight conditions. It is apparent from the Subsonic Cruise tables that the GW's for some of the drag indexes are not realistic. This data is only used to give good results when extrapolation of the data is required. One conversion chart is supplied as an aid in computing TAS and fuel flow. The following considerations will assist in selecting the combination of flight conditions and techniques which will result in required mission performance:

- Optimum Mach/Optimum Altitude: A cruise-climb technique is required. Mach remains constant throughout the cruise while altitude increases as fuel is consumed. Changes in optimum mach due to changes in GW are insignificant. Use of this technique will result in maximum attainable range (including maximum aircraft capability).

- Optimum Mach/Constant Altitude: Mach number is decreased as fuel is consumed. This cruise technique will yield maximum cruise performance at a given altitude.

- Constant Mach/Constant Altitude: Cruise at a given mach and altitude condition. This technique does not usually provide maximum performance but is often used due to time and flightpath constraints.

OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE

Detailed optimum cruise-climb performance data is given in figure B4-1. Cruise data is shown as specific range and optimum altitude versus GW for lines of drag index. Optimum cruise mach numbers are tabulated on each drag index line. Fuel flow may be computed from figure B4-2.

REFER TO FIGURE B4-1.

Enter chart with cruise GW (A) and proceed vertically upward to drag index (B) in both the lower and upper portions of the chart. In the lower portion of the chart, proceed to the left from (B) to read specific range (C). In the upper portion of the chart, proceed to the left from (B) to read optimum cruise altitude (D). Optimum cruise mach number is obtained from the mach numbers indicated on the drag index lines in the lower portion of the chart.

SAMPLE PROBLEM.

A.	GW	=	28,000 pounds
B.	Drag index	=	0
C.	Specific range	=	0.199 nm per pound of fuel
D.	Optimum cruise altitude	=	39,100 feet
•	Optimum cruise mach	=	0.90

FUEL FLOW CONVERSION

The Fuel Flow Conversion chart, figure B4-2, is used to convert specific range and speed into fuel flow.

REFER TO FIGURE B4-2.

To convert specific range into fuel flow, enter chart with mach number (A), proceed to the right to temperature (standard day temperature is shown on figure B1-5) (B), and then proceed upward, reading KTAS at (C). Continue to specific range line (D), and finally, proceed to the left to read fuel flow (E).

SAMPLE PROBLEM.

A.	Optimum cruise altitude	=	39,100 feet
•	Optimum cruise mach	=	0.90
B.	Temperature	=	–56.5°C (Standard day temperature is shown)
C.	KTAS	=	516
D.	Specific range	=	0.199 nm per pound of fuel
E.	Fuel flow	=	2590 pounds per hour

SUBSONIC CRUISE TABLES

The Subsonic Cruise tables, figure B4-3, present dry thrust fuel flow data for a range of constant cruise altitudes (sea level-45,000 feet), true airspeeds (180-690 knots), GW's (20,000-48,000 pounds), and drag indexes (0-400). True airspeeds and fuel flows for maximum range/endurance cruise at constant altitude and drag index are presented for a range of GW's. If Vmin (minimum true airspeed based on MIL) is greater than 180 knots, then Vmin and the fuel flow at Vmin are shown. Vmax (maximum true airspeed based on MIL) and the fuel flow at Vmax are also shown. Temperature effect factors are presented for ±20°C ambient temperature deviation from standard. Cruise KTAS are presented in increments of 30 KTAS. The fuel flows are shown in PPH; therefore, the distance flown and fuel consumed at some specified cruise time may be quickly evaluated.

REFER TO FIGURE B4-3.

To find fuel flow for cruise at a constant true airspeed and altitude, enter the table with appropriate drag index, KTAS, and GW. Then read the fuel flow in PPH. To find fuel flow and KTAS at constant altitude cruise for Vmin, Vmax, maximum endurance, or maximum range, enter the table with drag index and GW. Then read standard fuel flow and KTAS for the specified condition. Temperature effect factors are found on the right side of each chart. Multiply standard day fuel flows by their respective factor to get final fuel flows for ±20°C deviation from standard. To compute fuel flows for other temperatures, simply ratio the difference between standard day values and ±20°C values for the particular temperature deviation.

True airspeeds for Vmin, Vmax, maximum endurance, and maximum range are affected by ambient temperature and correction factors for these airspeeds are presented on the right side of the chart. These factors are used to correct KTAS in the same manner as described for fuel flows. If the factors are greater than 1, final fuel flow and KTAS increases. If the factors are less than 1, final fuel flow and KTAS decreases.

SAMPLE PROBLEM.

A.	Altitude	=	30,000 feet
B.	Drag index	=	0
C.	GW	=	20,000 pounds
D.	KTAS	=	360
E.	Standard day ambient temperature	=	–44°C
F.	Ambient temperature	=	–34°C
G.	Temperature deviation	=	10°C hot

Find fuel consumed and time required to cruise at 360 knots for 180 nm:

H.	Standard day fuel flow	=	1785 PPH
I.	Temperature effect fuel flow factor at +20°C and 360 KTAS	=	1.073
J.	Fuel flow at +20°C hot is 1.073 × 1785	=	1915 PPH
K.	Fuel flow for ambient temperature of −34°C is $1785 + (130 \times \frac{10}{20})$	=	1850 PPH
L.	Time to travel 180 nm at 360 KTAS is $\frac{180}{360}$	=	0.5 hour
M.	Fuel consumed in 0.5 hour of cruise at 360 KTAS is 1850 × 0.5	=	925 pounds

Find fuel consumed and air distance traveled for maximum range cruise for 30 minutes:

N.	Standard day maximum range airspeed	=	416 KTAS
O.	Standard day fuel flow	=	1990 PPH
P.	Temperature effect factor for KTAS at +20°C	=	1.043
Q.	Temperature effect fuel flow factor at +20°C	=	1.046
R.	KTAS at 20°C hot is 1.043 × 416	=	434
S.	Fuel flow at 20°C hot is 1.046 × 1990	=	2082 PPH
T.	KTAS for ambient temperature of −34°C is $416 + (18 \times \frac{10}{20})$	=	425
U.	Fuel flow for ambient temperature of −34°C is $1990 + (92 \times \frac{10}{20})$	=	2036 PPH
V.	Air distance traveled in 30 minutes at 425 KTAS is $\frac{425}{60} \times 30$	=	213 nm
W.	Fuel consumed in 30 minutes of cruise at 425 KTAS is $\frac{2036}{60} \times 30$	=	1018 pounds

To find the fuel flow and KTAS for maximum endurance cruise, use the method outlined above for maximum range cruise; then loiter time = fuel consumed/ fuel flow.

REFER TO FIGURE B4-3, SHEET 1.

If an average bank angle of 30 degrees were used in the above problem, an effective GW of 23,100 pounds would have to be used to enter the chart. Find the effective GW by entering the lower right plot with GW (A), follow the guidelines to bank angle (B), and read effective GW (C).

SAMPLE PROBLEM.

A.	GW	=	20,000 pounds
B.	Bank angle	=	30 degrees
C.	Effective GW	=	23,100 pounds

DIVERSION DECISION

The Diversion Decision – Divert and Diversion Decision – Loiter, figure B4-4, contain range and time available data to be used in deciding whether to divert to another base or wait (loiter) until the runway is reopened. Data is given for fuel quantities up to 2000 pounds and for initial altitudes from sea level to 40,000 feet. Range and time available by staying at initial altitude or by climbing to optimum altitude are given. Range and time for climbs to optimum altitude, cruise or loiter, and descents to sea level are included in all data as applicable. No reserve fuel is included in the data.

SAMPLE PROBLEM.

Assume that you have arrived over base at 5000 feet MSL with only 600 pounds of fuel remaining and are informed that the runway is closed due to an accident. Twenty to 30 minutes is required to open the runway. Can you wait (loiter) for the runway to open, or should you divert to a base only 50 nm away? Checking figure B4-4 yields the following information:

- Range Available at 5000 feet MSL = 68 nm (cruise at mach = 0.46, begin enroute descent 9 nm from destination with 41 pounds fuel used in descent).
- Range Available Using Optimum Altitude = 93 nm (MIL climb at 433 KIAS or optimum altitude mach number, whichever is less, to 30,000 feet, cruise at mach 0.70, and begin enroute descent 53 nm from destination with 184 pounds fuel used in descent).

- Loiter Time Available at 5000 feet MSL = 15.0 minutes (loiter at mach = 0.35, begin descent 7 nm from destination with 34 pounds fuel used in descent).

- Loiter Time Available Using Optimum Altitude = 16 minutes (MIL climb at 433 KIAS or optimum altitude mach number, whichever is less, to 20,000 feet, loiter at mach = 0.46, begin descent 30 nm from destination with 116 pounds fuel used in descent).

Based on this information, a decision to divert to the nearby base would be prudent. Maximum holding time using all remaining fuel, optimum altitude, and an IDLE descent would yield only 16 minutes – too little. Even remaining at 5000 feet MSL, a range of 68 nm is available which would leave a small fuel reserve at the alternate base. Even more reserve fuel would remain if optimum altitude (30,000 feet) were used.

If range and time available (which require a fuel reserve) are needed, find the range and time which would be available if the desired reserve were consumed and deduct those values from range and time available for the total fuel on board. For instance, if 200 pounds reserve fuel had been required in the above problem, 26 nm would be deducted from the 68 nm range available by cruising at 5000 feet. The other range and times available would be adjusted in the same manner. However, note, for this sample problem, 50 nm is not obtainable with 200 pounds reserve.

BEST CRUISE ALTITUDE FOR SHORT RANGE MISSION

For short missions or mission legs, fuel consumption can be minimized by climbing to a lower-than-optimum cruise altitude and descending on course. For distances of 250 nm or less, use of a lower-than-optimum cruise altitude will result in lower overall fuel usage. Figure B4-5 contains information defining the best altitude to use for these short distances as a function of initial GW and distance. For distances greater than 250 nm, optimum cruise altitude should be used. Fuel consumption is given in figure B4-5 as a function of drag index for each initial GW and distance. Also provided in the chart is the range from destination at which to begin a penetration descent or maximum range descent. All data shown is based on beginning at sea level, climbing to the indicated altitude using MIL, cruising at optimum mach at the indicated altitude to the descent point, and executing a penetration descent (300 KIAS, IDLE, and speedbrakes open) or maximum range descent (at schedule KIAS, IDLE, and with speedbrakes closed). MIL climb speed for any drag index may be obtained from Part 3 and optimum KTAS for constant altitude cruise from the Subsonic Cruise Tables. Further guidance to establish the climb and cruise conditions recommended in the Best Cruise Altitude for Short Range Mission chart is available through the FCC cruise energy management guidance system. Climb speed for most economical climb may be established through use of the CRUS HOM mode on the upfront control set. Climb speed guidance is displayed on the HUD speed scale (scales switch set to VV/VAH). Once at altitude, optimum cruise mach can be established by using the CAS, TAS, or GND speed guidance displayed on the HUD when the CRUS RNG mode is selected on the upfront control set.

REFER TO FIGURE B4-5.

Enter figure B4-5 with start climb GW (A), desired total mission range (B), and drag index (C). With these given conditions, read best cruise altitude (D), fuel consumed (E), and penetration descent range (F).

SAMPLE PROBLEM.

A.	Start climb GW	=	28,000 pounds
B.	Total mission range	=	150 nm
C.	Drag index	=	200
D.	Best cruise altitude	=	30,900 feet
E.	Fuel consumed	=	1499 pounds
F.	Penetration descent range	=	17.4 nm

Optimum Cruise

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

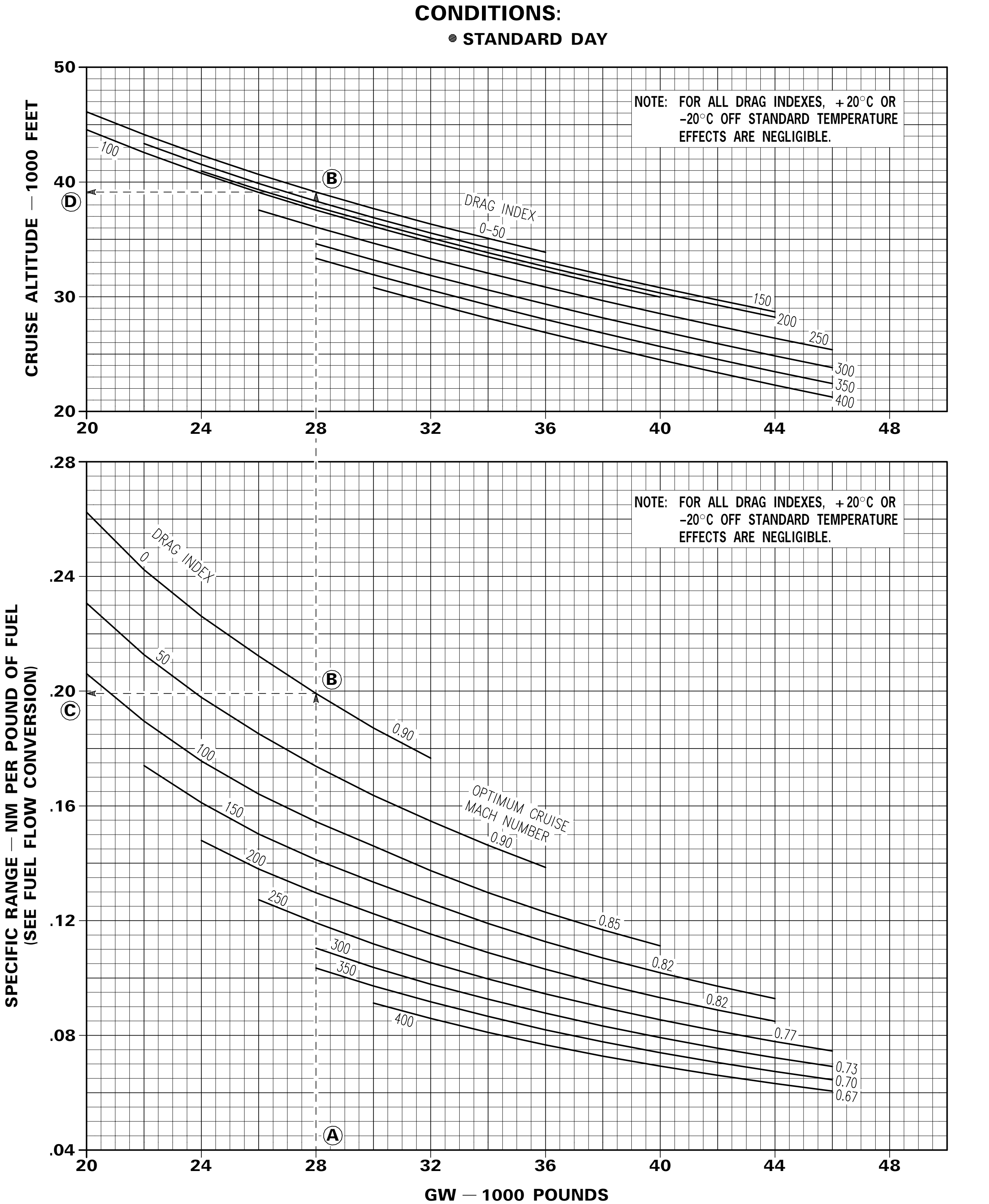


Figure B4-1.

Fuel Flow Conversion

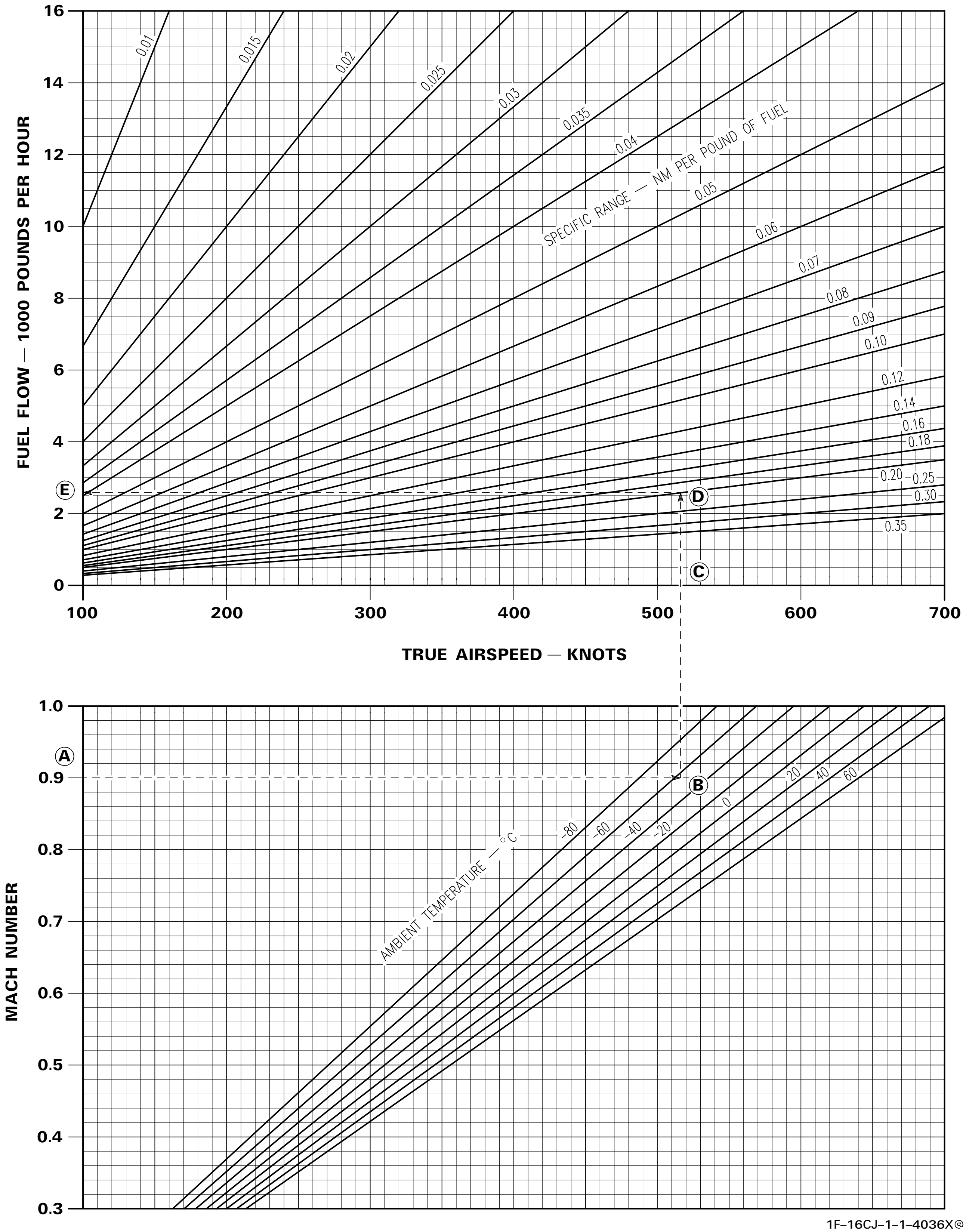


Figure B4-2.

Subsonic Cruise — Effects of Bank Angle

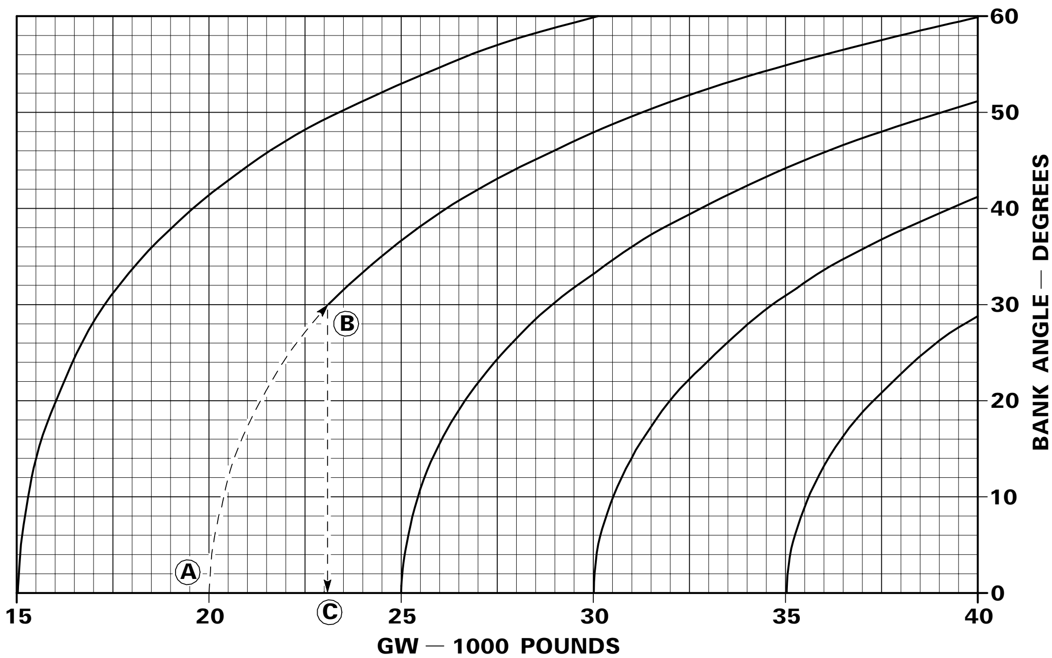


Figure B4-3. (Sheet 1)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 0	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––						
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––						
	180	2485	2695	2937	3229	3548	3899	4261	4643					1.075	0.922
	210	2407	2537	2691	2868	3079	3322	3581	3867					1.065	0.942
	240	2491	2579	2677	2793	2920	3073	3264	3468					1.049	0.961
	270	2664	2727	2801	2883	2973	3073	3207	3350					1.038	0.979
	300	2923	2974	3031	3098	3174	3262	3362	3469					1.028	0.988
	330	3221	3270	3327	3390	3458	3532	3611	3697					1.020	0.999
	360	3651	3691	3736	3785	3841	3903	3969	4040					1.008	1.004
	390	4120	4154	4191	4232	4277	4325	4378	4439					1.001	1.010
	420	4655	4687	4722	4760	4799	4839	4881	4927					0.990	1.015
	450	5232	5258	5292	5328	5367	5409	5450	5488					0.987	1.017
	480	5883	5897	5915	5944	5975	6008	6045	6083					0.982	1.023
	510	6617	6627	6640	6656	6673	6695	6718	6744					0.973	1.029
	540	7520	7527	7538	7552	7568	7585	7604	7625					0.966	1.039
	570	8640	8646	8653	8663	8675	8689	8704	8720					0.957	1.034
	600	10,202	10,206	10,211	10,216	10,223	10,232	10,241	10,252					0.915	1.169
	630	13,556	13,561	13,572	13,585	13,599	13,615	13,633	13,652					0.848	1.228
	660														
	MIL	17,013	17,013	17,013	17,013	17,012	17,012	17,012	17,012					0.826	0.975
	VMAX	645	645	645	645	645	644	644	644					1.011	0.967
		MAX ENDURANCE													
	KTAS	204	215	225	235	245	257	265	265					1.034	0.965
	FUEL FLOW	2405	2535	2664	2792	2918	3052	3195	3344					1.037	0.962
		MAX RANGE													
	KTAS	310	320	317	322	328	331	331	340					1.034	0.965
	FUEL FLOW	3022	3164	3188	3309	3439	3540	3620	3801					1.037	0.962

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 50	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––			
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––			
	180	2546	2757	3008	3302	3623	3977	4343	4735	5212	5740	6372		1.069	0.915
	210	2497	2626	2779	2958	3175	3420	3681	3969	4275	4606	4991		1.063	0.933
	240	2614	2700	2797	2912	3051	3209	3399	3600	3815	4057	4312		1.057	0.956
	270	2824	2886	2959	3041	3144	3257	3389	3531	3682	3845	4033		1.042	0.978
	300	3137	3192	3255	3328	3408	3500	3598	3704	3816	3940	4078		1.026	0.988
	330	3531	3579	3634	3695	3761	3833	3910	3993	4087	4186	4290		1.014	1.000
	360	4026	4066	4109	4158	4212	4272	4337	4406	4480	4559	4642		1.003	1.004
	390	4568	4601	4637	4677	4720	4767	4819	4878	4941	5008	5079		0.997	1.012
	420	5189	5220	5254	5291	5329	5367	5409	5454	5502	5558	5618		0.986	1.019
	450	5863	5887	5920	5955	5993	6034	6074	6111	6150	6193	6238		0.983	1.021
	480	6623	6635	6651	6678	6710	6746	6788	6833	6881	6922	6966		0.985	1.025
	510	7600	7608	7620	7634	7653	7677	7704	7733	7765	7800	7838		0.971	1.032
	540	8760	8762	8767	8775	8786	8797	8815	8834	8854	8878	8903		0.956	1.048
	570	10,122	10,123	10,127	10,133	10,141	10,151	10,161	10,174	10,192	10,211	10,231		0.951	1.047
	600	12,093	12,091	12,091	12,091	12,093	12,096	12,100	12,105	12,111	12,121	12,134		0.908	1.217
	630														
	660														
	MIL	16,983	16,983	16,983	16,983	16,983	16,983	16,983	16,982	16,982	16,982	16,982		0.832	0.979
	VMAX	630	630	630	630	630	630	630	630	630	630	630		1.003	0.967
		MAX ENDURANCE													
	KTAS	198	208	218	229	236	246	254	262	265	271	278		1.034	0.965
	FUEL FLOW	2486	2626	2764	2903	3050	3204	3360	3515	3673	3844	4016		1.037	0.962
		MAX RANGE													
	KTAS	285	290	295	299	309	319	328	331	339	348	357		1.034	0.965
	FUEL FLOW	2965	3080	3200	3316	3505	3694	3884	4003	4188	4398	4605		1.037	0.962

Figure B4-3. (Sheet 2)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 100	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180	2607	2820	3080	3375	3698	4055	4424	4826	5307	5839	7211	8913	1.066	0.916
	210	2587	2716	2868	3056	3272	3519	3781	4070	4378	4715	5517	6372	1.062	0.933
	240	2736	2821	2917	3044	3188	3346	3533	3732	3944	4188	4715	5364	1.052	0.953
	270	2986	3048	3131	3226	3329	3440	3571	3712	3862	4024	4405	4832	1.038	0.977
	300	3376	3434	3498	3569	3647	3738	3835	3939	4049	4172	4453	4763	1.021	0.989
	330	3841	3889	3942	4000	4064	4134	4208	4290	4382	4480	4692	4933	1.008	1.002
	360	4402	4440	4483	4530	4583	4642	4704	4772	4844	4921	5093	5287	0.998	1.007
	390	5016	5048	5083	5122	5164	5210	5260	5318	5380	5445	5589	5748	0.993	1.015
	420	5724	5753	5786	5822	5858	5896	5936	5980	6027	6081	6203	6345	0.983	1.022
	450	6496	6522	6558	6597	6641	6689	6734	6776	6822	6870	6979	7113	0.983	1.024
	480	7489	7501	7517	7548	7583	7620	7660	7704	7750	7790	7879	7980	0.981	1.028
	510	8651	8655	8662	8673	8689	8711	8736	8764	8794	8827	8902	8984	0.965	1.041
	540	10,030	10,026	10,026	10,028	10,034	10,040	10,057	10,075	10,096	10,119	10,173	10,239	0.955	1.052
	570	11,633	11,630	11,630	11,631	11,635	11,640	11,647	11,656	11,671	11,687	11,725	11,770	0.950	1.060
	600	14,208	14,200	14,193	14,188	14,185	14,182	14,181	14,181	14,183	14,189	14,212	14,240	0.889	1.090
	630														
	660														
	MIL	16,902	16,902	16,903	16,903	16,903	16,904	16,904	16,904	16,904	16,904	16,903	16,902	0.839	0.987
	VMAX	613	614	614	614	614	614	614	614	614	614	614	613	1.007	0.969
		MAX ENDURANCE													
	KTAS	196	206	216	225	233	242	248	256	264	269	282	294	1.034	0.965
	FUEL FLOW	2564	2712	2860	3014	3180	3346	3512	3677	3843	4024	4389	4756	1.037	0.962
		MAX RANGE													
	KTAS	269	271	279	290	299	310	319	328	331	335	352	369	1.034	0.965
	FUEL FLOW	2977	3061	3233	3438	3639	3860	4063	4265	4391	4540	4977	5410	1.037	0.962

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 150	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180	2669	2888	3152	3449	3773	4133	4506	4918	5401	5938	7325	9048	1.067	0.917
	210	2677	2805	2960	3154	3369	3617	3881	4172	4481	4828	5636	6508	1.059	0.935
	240	2859	2944	3049	3181	3326	3483	3668	3865	4074	4320	4856	5512	1.047	0.957
	270	3166	3236	3319	3412	3513	3623	3753	3893	4042	4202	4579	5010	1.032	0.980
	300	3622	3679	3741	3810	3887	3975	4071	4174	4283	4404	4682	4992	1.015	0.993
	330	4151	4198	4249	4306	4367	4435	4507	4586	4677	4774	4983	5224	1.003	1.005
	360	4778	4815	4857	4903	4955	5011	5072	5138	5208	5284	5453	5655	0.993	1.010
	390	5465	5495	5529	5566	5607	5652	5702	5759	5820	5885	6026	6199	0.991	1.018
	420	6259	6290	6323	6363	6404	6447	6493	6543	6597	6659	6799	6954	0.984	1.026
	450	7236	7262	7298	7337	7379	7425	7470	7511	7555	7602	7708	7840	0.980	1.027
	480	8373	8382	8395	8425	8458	8494	8533	8575	8620	8659	8745	8843	0.976	1.033
	510	9750	9749	9753	9760	9774	9798	9824	9853	9886	9921	10,001	10,090	0.961	1.043
	540	11,373	11,363	11,356	11,353	11,352	11,352	11,367	11,384	11,403	11,424	11,474	11,536	0.952	1.053
	570	13,207	13,200	13,195	13,192	13,191	13,193	13,195	13,200	13,214	13,229	13,264	13,306	0.946	1.073
	600	16,495	16,481	16,468	16,457	16,447	16,438	16,431	16,425	16,421	16,421	16,434	16,453	0.940	1.093
	630														
	660														
	MIL	16,839	16,840	16,840	16,840	16,841	16,841	16,841	16,841	16,842	16,842	16,841	16,841	0.839	0.994
	VMAX	601	601	602	602	602	602	602	602	602	602	602	602	0.993	0.969
		MAX ENDURANCE													
	KTAS	196	205	214	223	231	240	248	256	263	265	274	286	1.034	0.965
	FUEL FLOW	2641	2797	2957	3132	3307	3483	3659	3836	4013	4194	4577	4966	1.037	0.962
		MAX RANGE													
	KTAS	265	265	270	280	289	298	307	316	324	331	340	354	1.034	0.965
	FUEL FLOW	3091	3167	3325	3533	3742	3954	4167	4377	4593	4782	5128	5566	1.037	0.962

Figure B4-3. (Sheet 3)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	----	----	----	----	----	----	----	----	----	----	----	----		
VMIN	---	---	---	---	---	---	---	---	---	---	---	---		
180	2956	3223	3522	3848	4211	4591	5009	5494	6037	6700	8260	10,148	1.081	0.917
210	2897	3060	3252	3466	3715	3981	4273	4584	4941	5340	6180	7160	1.058	0.932
240	3080	3188	3321	3464	3620	3802	3997	4204	4451	4712	5323	6011	1.044	0.955
270	3426	3507	3598	3698	3806	3935	4074	4222	4381	4562	4960	5464	1.029	0.979
300	3924	3984	4052	4126	4213	4307	4409	4516	4636	4770	5066	5420	1.012	0.993
330	4508	4557	4611	4670	4736	4806	4883	4972	5068	5168	5404	5686	1.001	1.005
360	5190	5231	5276	5326	5381	5440	5508	5580	5657	5739	5933	6157	0.994	1.011
390	5945	5978	6015	6055	6100	6156	6220	6288	6362	6439	6609	6798	0.994	1.018
420	6910	6946	6986	7026	7067	7112	7161	7214	7274	7340	7485	7646	0.982	1.027
450	8004	8038	8076	8117	8162	8206	8245	8288	8334	8383	8500	8636	0.978	1.031
480	9295	9307	9340	9376	9416	9459	9506	9556	9599	9645	9748	9864	0.973	1.033
510	10,927	10,926	10,928	10,940	10,961	10,986	11,013	11,043	11,077	11,114	11,194	11,285	0.952	1.041
540	12,713	12,700	12,690	12,683	12,677	12,690	12,705	12,722	12,742	12,764	12,816	12,883	0.953	1.054
570	14,827	14,817	14,810	14,804	14,801	14,799	14,800	14,811	14,822	14,836	14,869	14,910	0.942	1.090
600														
630														
660														
MIL	16,751	16,752	16,752	16,752	16,752	16,752	16,752	16,752	16,752	16,752	16,751	16,750	0.838	1.001
VMAX	590	590	590	590	590	590	590	590	590	590	590	589	0.969	0.974
	MAX ENDURANCE													
KTAS	199	210	218	226	234	241	249	256	262	265	274	285	1.034	0.965
FUEL FLOW	2879	3060	3245	3430	3616	3802	3988	4175	4363	4553	4958	5389	1.037	0.962
	MAX RANGE													
KTAS	264	265	271	280	288	297	305	313	321	329	335	349	1.034	0.965
FUEL FLOW	3345	3435	3608	3825	4042	4262	4481	4704	4926	5148	5485	5963	1.037	0.962

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	----	----	----	----	----	----	----	----	----	----	----	----		
VMIN	---	---	---	---	---	---	---	---	---	---	---	---		
180	3026	3295	3596	3923	4289	4678	5100	5588	6136	6809	8385	10,283	1.080	0.918
210	2994	3161	3351	3562	3814	4081	4374	4689	5054	5456	6302	7297	1.056	0.934
240	3222	3329	3460	3602	3757	3937	4129	4334	4582	4851	5469	6161	1.040	0.959
270	3615	3695	3785	3883	3989	4117	4255	4402	4560	4738	5144	5648	1.025	0.982
300	4169	4228	4293	4366	4451	4544	4644	4750	4868	5003	5311	5664	1.007	0.996
330	4817	4864	4916	4974	5037	5105	5180	5275	5377	5485	5720	5999	0.999	1.008
360	5572	5614	5660	5711	5767	5827	5895	5970	6051	6137	6336	6558	0.994	1.012
390	6443	6479	6520	6565	6614	6669	6731	6798	6870	6946	7112	7298	0.991	1.020
420	7536	7571	7609	7648	7688	7731	7779	7830	7889	7954	8096	8254	0.979	1.029
450	8745	8778	8820	8866	8915	8964	9007	9055	9106	9160	9289	9441	0.976	1.033
480	10,305	10,314	10,345	10,380	10,418	10,460	10,505	10,554	10,595	10,640	10,739	10,852	0.962	1.039
510	12,094	12,088	12,085	12,093	12,113	12,135	12,160	12,188	12,219	12,253	12,328	12,414	0.955	1.043
540	14,072	14,053	14,036	14,024	14,011	14,022	14,035	14,050	14,068	14,088	14,136	14,199	0.952	1.063
570														
600														
630														
660														
MIL	16,561	16,563	16,565	16,566	16,567	16,567	16,568	16,567	16,566	16,565	16,561	16,556	0.843	1.017
VMAX	570	570	571	571	571	571	571	571	571	571	570	570	0.963	0.983
	MAX ENDURANCE													
KTAS	198	204	212	220	228	235	242	249	255	262	267	278	1.034	0.965
FUEL FLOW	2965	3157	3350	3544	3739	3934	4129	4325	4521	4718	5143	5593	1.037	0.962
	MAX RANGE													
KTAS	260	265	265	271	280	288	296	304	311	314	327	341	1.034	0.965
FUEL FLOW	3461	3611	3706	3903	4128	4355	4584	4811	5039	5201	5675	6164	1.037	0.962

Figure B4-3. (Sheet 4)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	–20°C
DRAG INDEX = 300	**MIL**		–––––	–––––	–––––	–––––	–––––	–––––	–––––	–––––	–––––	–––––	–––––		
	VMIN		–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180		3367	3669	3998	4367	4766	5191	5681	6240	6917	8509	10,423	1.090	0.919
	210		3261	3449	3659	3912	4181	4475	4801	5167	5572	6430	7433	1.058	0.933
	240		3469	3599	3741	3894	4072	4262	4465	4714	4994	5615	6311	1.040	0.960
	270		3883	3971	4068	4173	4299	4436	4582	4738	4917	5329	5832	1.021	0.983
	300		4471	4534	4605	4689	4781	4879	4985	5107	5249	5559	5909	1.004	0.997
	330		5172	5224	5285	5351	5423	5502	5597	5697	5804	6037	6313	0.999	1.008
	360		6017	6066	6119	6176	6239	6307	6380	6459	6543	6739	6958	0.992	1.013
	390		6998	7037	7081	7128	7182	7242	7308	7378	7453	7616	7799	0.988	1.021
	420		8195	8232	8270	8308	8351	8397	8447	8504	8571	8725	8897	0.979	1.030
	450		9621	9661	9705	9754	9801	9843	9889	9939	9992	10,118	10,266	0.967	1.041
	480		11,319	11,348	11,380	11,416	11,456	11,499	11,545	11,584	11,627	11,721	11,829	0.963	1.043
	510		13,238	13,231	13,235	13,253	13,273	13,296	13,322	13,352	13,384	13,456	13,537	0.959	1.049
	540		15,464	15,439	15,418	15,398	15,407	15,419	15,434	15,451	15,471	15,519	15,584	0.944	1.066
	570														
	600														
	630														
	660														
	MIL		16,365	16,368	16,371	16,373	16,375	16,374	16,372	16,370	16,368	16,363	16,357	0.845	1.034
	VMAX		550	550	551	551	551	551	551	551	550	550	549	0.958	0.989
	MAX ENDURANCE														
	KTAS		199	207	215	222	229	236	242	249	256	265	277	1.034	0.965
	FUEL FLOW		3246	3448	3650	3853	4056	4259	4464	4668	4878	5318	5788	1.037	0.962
	MAX RANGE														
	KTAS		261	265	265	272	281	288	296	303	310	325	339	1.034	0.965
	FUEL FLOW		3734	3883	3984	4208	4444	4678	4917	5154	5401	5947	6473	1.037	0.962

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	–20°C
DRAG INDEX = 350	**MIL**			–––––	–––––	–––––	–––––	–––––	–––––	–––––	–––––	–––––	–––––		
	VMIN			–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180			3742	4073	4444	4854	5282	5775	6346	7026	8633	10,578	1.094	0.916
	210			3548	3755	4010	4281	4577	4912	5280	5687	6562	7569	1.063	0.931
	240			3738	3879	4032	4206	4394	4595	4851	5137	5762	6460	1.042	0.961
	270			4158	4253	4356	4481	4617	4763	4920	5107	5514	6016	1.019	0.983
	300			4776	4845	4927	5020	5121	5233	5357	5499	5806	6153	1.007	0.999
	330			5557	5615	5679	5749	5826	5919	6018	6124	6353	6626	0.998	1.008
	360			6485	6537	6592	6653	6719	6791	6867	6949	7142	7358	0.990	1.015
	390			7554	7596	7643	7695	7754	7818	7887	7961	8122	8305	0.987	1.022
	420			8890	8931	8972	9017	9067	9121	9183	9252	9402	9571	0.974	1.035
	450			10,502	10,545	10,592	10,638	10,679	10,724	10,772	10,824	10,946	11,093	0.963	1.048
	480			12,333	12,364	12,399	12,437	12,478	12,523	12,561	12,602	12,693	12,798	0.966	1.045
	510			14,376	14,377	14,393	14,413	14,435	14,461	14,490	14,524	14,600	14,686	0.958	1.053
	540														
	570														
	600														
	630														
	660														
	MIL			16,191	16,194	16,196	16,195	16,193	16,192	16,190	16,187	16,181	16,173	0.847	1.052
	VMAX			532	532	532	532	532	532	532	532	531	530	0.954	0.996
	MAX ENDURANCE														
	KTAS			204	211	219	226	233	240	246	253	265	277	1.034	0.965
	FUEL FLOW			3540	3750	3960	4171	4383	4595	4810	5036	5492	5981	1.037	0.962
	MAX RANGE														
	KTAS			262	265	269	278	286	293	301	308	321	331	1.034	0.965
	FUEL FLOW			4018	4160	4340	4602	4855	5095	5368	5630	6159	6642	1.037	0.962

Figure B4-3. (Sheet 5)

Subsonic Cruise — Sea Level

DATA BASIS FLIGHT TEST | **CONDITIONS:** | **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL			––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN			–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180			3815	4148	4523	4942	5373	5867	6452	7134	8756	10,738	1.094	0.917
210			3646	3852	4108	4380	4680	5023	5392	5803	6694	7705	1.062	0.932
240			3877	4017	4169	4341	4527	4726	4992	5280	5908	6616	1.043	0.963
270			4344	4438	4540	4663	4799	4947	5112	5297	5699	6200	1.019	0.986
300			5020	5090	5176	5272	5375	5486	5608	5749	6054	6398	1.005	1.001
330			5891	5946	6008	6075	6150	6241	6339	6443	6669	6939	0.997	1.010
360			6905	6955	7008	7067	7131	7201	7275	7355	7548	7772	0.989	1.017
390			8074	8115	8161	8211	8270	8336	8409	8487	8658	8850	0.986	1.023
420			9581	9620	9660	9704	9752	9804	9865	9932	10,080	10,245	0.967	1.042
450			11,348	11,390	11,435	11,481	11,521	11,564	11,612	11,663	11,783	11,927	0.965	1.050
480			13,319	13,348	13,381	13,418	13,457	13,501	13,538	13,577	13,665	13,767	0.967	1.048
510			15,639	15,637	15,652	15,671	15,692	15,717	15,745	15,777	15,849	15,931	0.958	1.053
540														
570														
600														
630														
660														
MIL			16,041	16,043	16,041	16,039	16,037	16,035	16,032	16,029	16,020	16,011	0.848	1.069
VMAX			515	515	515	514	514	514	514	513	512	511	0.951	1.005
MAX ENDURANCE														
KTAS			204	211	219	226	233	239	246	252	265	276	1.034	0.965
FUEL FLOW			3630	3848	4066	4285	4504	4725	4957	5193	5666	6175	1.037	0.962
MAX RANGE														
KTAS			256	263	269	277	282	288	294	301	314	327	1.034	0.965
FUEL FLOW			4089	4316	4515	4772	4998	5233	5500	5769	6316	6865	1.037	0.962

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

Figure B4-3. (Sheet 6)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 0	MIL	----	----	----	----	----	----	----	----						
	VMIN	---	---	---	---	---	---	---	---						
	180	2423	2684	2982	3318	3675	4052	4515	5032					1.080	0.916
	210	2266	2427	2617	2848	3099	3377	3677	4005					1.073	0.931
	240	2292	2395	2514	2655	2835	3033	3247	3486					1.068	0.950
	270	2421	2497	2582	2677	2803	2943	3092	3258					1.051	0.973
	300	2636	2695	2767	2850	2947	3051	3163	3289					1.035	0.983
	330	2904	2962	3026	3097	3174	3257	3350	3450					1.021	0.996
	360	3267	3313	3364	3423	3487	3557	3632	3712					1.011	1.002
	390	3668	3706	3748	3794	3845	3904	3968	4036					1.005	1.010
	420	4133	4167	4203	4240	4281	4325	4374	4431					0.994	1.014
	450	4633	4661	4693	4728	4765	4801	4840	4882					0.987	1.017
	480	5201	5219	5242	5268	5297	5329	5364	5400					0.981	1.024
	510	5844	5857	5873	5890	5910	5932	5956	5983					0.976	1.031
	540	6643	6655	6670	6686	6705	6725	6748	6773					0.968	1.041
	570	7607	7615	7625	7638	7652	7668	7687	7709					0.962	1.073
	600	9458	9465	9473	9483	9494	9507	9520	9537					0.875	1.201
	630	13,463	13,477	13,493	13,512	13,532	13,554	13,579	13,605					0.792	1.268
	660														
	MIL	15,743	15,743	15,743	15,743	15,742	15,742	15,742	15,741					0.843	1.035
	VMAX	641	641	641	641	641	641	641	641					1.013	0.974
		MAX ENDURANCE													
	KTAS	218	229	240	255	261	261	266	275					1.035	0.964
	FUEL FLOW	2263	2389	2514	2643	2784	2933	3091	3251					1.038	0.961
		MAX RANGE													
	KTAS	317	318	324	326	330	342	354	366					1.035	0.964
	FUEL FLOW	2773	2846	2970	3058	3170	3371	3571	3771					1.038	0.961

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50	MIL	----	----	----	----	----	----	----	----	----	----	----			
	VMIN	---	---	---	---	---	---	---	---	---	---	---			
	180	2481	2748	3048	3385	3745	4132	4598	5120	5780	6495	7351		1.093	0.916
	210	2345	2505	2703	2934	3187	3465	3767	4103	4491	4895	5314		1.076	0.926
	240	2398	2500	2626	2775	2953	3150	3361	3601	3856	4130	4449		1.066	0.943
	270	2560	2637	2730	2838	2963	3102	3250	3414	3601	3800	4008		1.049	0.968
	300	2830	2898	2973	3059	3155	3258	3368	3493	3630	3776	3930		1.031	0.982
	330	3175	3231	3294	3362	3437	3518	3610	3708	3813	3924	4041		1.017	0.995
	360	3597	3641	3691	3749	3811	3879	3952	4031	4115	4207	4304		1.006	1.002
	390	4062	4099	4139	4184	4234	4292	4354	4421	4492	4568	4648		1.000	1.011
	420	4605	4637	4672	4708	4748	4791	4839	4894	4955	5020	5088		0.989	1.016
	450	5191	5218	5249	5283	5319	5354	5392	5433	5477	5528	5587		0.983	1.021
	480	5855	5872	5893	5918	5948	5982	6022	6063	6107	6155	6206		0.984	1.026
	510	6708	6720	6735	6754	6776	6801	6829	6860	6895	6936	6980		0.975	1.037
	540	7757	7763	7772	7783	7799	7817	7838	7861	7887	7915	7948		0.958	1.047
	570	8938	8944	8952	8961	8973	8986	9003	9021	9042	9064	9088		0.954	1.091
	600	11,356	11,353	11,352	11,352	11,354	11,357	11,362	11,373	11,390	11,409	11,431		0.862	1.255
	630														
	660														
	MIL	15,698	15,698	15,698	15,697	15,697	15,697	15,697	15,697	15,696	15,696	15,696		0.843	1.036
	VMAX	626	626	626	626	626	626	626	625	625	625	625		1.010	0.972
		MAX ENDURANCE													
	KTAS	210	222	233	243	253	261	264	272	280	288	296		1.035	0.964
	FUEL FLOW	2345	2480	2623	2774	2927	3079	3241	3412	3582	3753	3925		1.038	0.961
		MAX RANGE													
	KTAS	290	293	305	316	326	330	341	351	361	371	381		1.035	0.964
	FUEL FLOW	2736	2831	3019	3206	3389	3515	3723	3926	4130	4333	4535		1.038	0.961

Figure B4-3. (Sheet 7)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (7°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	–20°C
MIL	----	----	----	----	----	----	----	----	----	----	----	10,230	1.029	0.954
VMIN	---	---	---	---	---	---	---	---	---	---	---	183	1.039	0.964
180	2541	2811	3113	3453	3816	4212	4680	5207	5876	6595	8380		1.093	0.917
210	2423	2587	2788	3020	3274	3554	3857	4203	4593	5000	5895	7066	1.076	0.925
240	2504	2611	2746	2896	3072	3266	3475	3717	3973	4256	4916	5676	1.068	0.944
270	2708	2796	2893	3000	3123	3261	3409	3571	3756	3952	4406	4960	1.046	0.969
300	3045	3111	3184	3269	3363	3464	3574	3696	3833	3978	4296	4693	1.028	0.984
330	3446	3501	3561	3627	3700	3779	3870	3966	4070	4179	4429	4731	1.012	0.996
360	3926	3970	4018	4074	4135	4202	4273	4350	4432	4523	4720	4945	1.000	1.004
390	4455	4491	4531	4574	4622	4679	4740	4806	4876	4950	5113	5296	0.995	1.013
420	5076	5108	5142	5177	5215	5257	5303	5358	5417	5482	5632	5813	0.986	1.019
450	5753	5782	5816	5854	5895	5934	5978	6025	6076	6134	6274	6429	0.985	1.025
480	6620	6637	6662	6690	6721	6756	6796	6836	6879	6925	7028	7162	0.979	1.031
510	7644	7651	7662	7679	7699	7723	7749	7778	7811	7851	7938	8038	0.968	1.044
540	8892	8892	8895	8901	8914	8932	8953	8977	9003	9031	9103	9189	0.956	1.052
570	10,304	10,307	10,312	10,318	10,327	10,338	10,351	10,366	10,384	10,403	10,446	10,501	0.952	1.110
600	13,551	13,537	13,525	13,515	13,506	13,499	13,493	13,499	13,515	13,533	13,574	13,621	0.838	1.165
630														
660														
MIL	15,606	15,607	15,607	15,607	15,607	15,608	15,608	15,607	15,607	15,606	15,603	15,601	0.845	1.039
VMAX	611	611	611	611	611	611	611	611	611	611	611	611	1.009	0.974
MAX ENDURANCE														
KTAS	209	219	229	239	246	255	262	269	277	284	297	312	1.035	0.964
FUEL FLOW	2422	2571	2732	2895	3058	3221	3390	3570	3751	3933	4296	4677	1.038	0.961
MAX RANGE														
KTAS	270	284	295	307	318	326	327	337	347	356	375	391	1.035	0.964
FUEL FLOW	2713	2927	3124	3338	3547	3730	3839	4050	4265	4478	4900	5313	1.038	0.961

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	–20°C
MIL	----	----	----	----	----	----	----	----	----	----	----	10,240	1.029	0.954
VMIN	---	---	---	---	---	---	---	---	---	---	---	184	1.039	0.964
180	2602	2875	3178	3520	3887	4291	4763	5296	5972	6695	8504		1.091	0.918
210	2502	2675	2873	3106	3361	3643	3948	4302	4696	5106	6015	7206	1.075	0.927
240	2617	2731	2867	3016	3190	3382	3589	3832	4090	4384	5046	5826	1.064	0.948
270	2874	2960	3056	3161	3283	3420	3567	3727	3910	4104	4567	5125	1.041	0.972
300	3260	3324	3396	3478	3571	3671	3779	3900	4036	4179	4504	4904	1.022	0.987
330	3718	3770	3828	3893	3963	4040	4129	4225	4327	4435	4693	5002	1.006	0.999
360	4255	4298	4346	4400	4459	4524	4594	4668	4749	4841	5044	5280	0.995	1.007
390	4849	4883	4922	4964	5011	5067	5127	5191	5260	5333	5515	5725	0.992	1.016
420	5554	5586	5622	5661	5705	5753	5805	5867	5935	6008	6168	6346	0.986	1.024
450	6405	6434	6468	6505	6546	6584	6627	6672	6722	6779	6915	7068	0.982	1.029
480	7404	7418	7442	7468	7499	7532	7571	7609	7651	7696	7795	7927	0.974	1.036
510	8611	8614	8621	8639	8660	8684	8712	8743	8779	8822	8917	9026	0.965	1.048
540	10,102	10,096	10,094	10,093	10,103	10,119	10,138	10,159	10,183	10,210	10,278	10,360	0.953	1.054
570	11,704	11,704	11,706	11,710	11,716	11,725	11,735	11,748	11,763	11,780	11,820	11,871	0.948	1.137
600														
630														
660														
MIL	15,495	15,496	15,497	15,498	15,499	15,500	15,500	15,500	15,500	15,499	15,498	15,496	0.849	1.042
VMAX	598	598	599	599	599	599	599	599	599	599	599	598	1.007	0.973
MAX ENDURANCE														
KTAS	207	217	227	237	246	255	261	261	269	275	290	303	1.035	0.964
FUEL FLOW	2500	2667	2839	3012	3186	3359	3535	3719	3910	4100	4494	4903	1.038	0.961
MAX RANGE														
KTAS	264	275	285	295	305	315	324	326	335	344	363	374	1.035	0.964
FUEL FLOW	2803	3010	3217	3424	3633	3843	4055	4178	4393	4614	5089	5467	1.038	0.961

Figure B4-3. (Sheet 8)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	10,325	1.029	0.956
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	191	1.039	0.963
	180	2938	3243	3588	3962	4371	4845	5388	6067	6800	7698	9801		1.096	0.907
	210	2762	2958	3191	3449	3732	4040	4402	4798	5211	5653	6713	8083	1.083	0.923
	240	2854	2989	3137	3309	3499	3703	3948	4214	4511	4837	5543	6437	1.064	0.942
	270	3125	3219	3323	3443	3579	3725	3884	4064	4257	4474	5003	5591	1.044	0.971
	300	3537	3607	3688	3779	3878	3984	4104	4238	4383	4543	4912	5327	1.022	0.987
	330	4040	4096	4158	4227	4301	4389	4483	4587	4702	4825	5118	5441	1.004	0.999
	360	4626	4673	4726	4784	4849	4920	4996	5079	5174	5279	5508	5762	0.997	1.007
	390	5276	5314	5355	5408	5470	5538	5611	5690	5773	5862	6057	6275	0.995	1.018
	420	6133	6170	6208	6251	6297	6348	6409	6476	6547	6622	6789	6974	0.985	1.024
	450	7089	7121	7157	7197	7234	7275	7320	7368	7424	7489	7630	7789	0.980	1.031
	480	8221	8247	8276	8310	8348	8391	8435	8482	8532	8587	8718	8882	0.972	1.038
	510	9672	9674	9690	9709	9731	9757	9786	9819	9860	9904	10,002	10,117	0.958	1.047
	540	11,296	11,287	11,280	11,287	11,301	11,318	11,337	11,359	11,383	11,412	11,484	11,567	0.952	1.059
	570	13,161	13,160	13,161	13,164	13,169	13,176	13,186	13,197	13,211	13,226	13,263	13,315	0.943	1.159
	600														
	630														
	660														
	MIL	15,415	15,416	15,416	15,416	15,416	15,417	15,417	15,417	15,417	15,417	15,416	15,416	0.845	1.045
	VMAX	589	589	589	589	589	589	589	589	589	589	589	589	0.984	0.973
	MAX ENDURANCE														
	KTAS	213	222	231	240	248	256	261	261	269	276	289	300	1.035	0.964
	FUEL FLOW	2761	2943	3126	3309	3493	3677	3862	4056	4257	4469	4897	5327	1.038	0.961
	MAX RANGE														
	KTAS	265	275	286	295	304	313	322	326	331	342	354	367	1.035	0.964
	FUEL FLOW	3071	3283	3500	3716	3934	4151	4371	4530	4723	4989	5416	5869	1.038	0.961

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 250	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	10,337	1.029	0.956
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	192	1.039	0.963
	180	3002	3308	3655	4037	4450	4926	5481	6162	6908	7812	9945		1.095	0.908
	210	2849	3044	3277	3536	3821	4138	4501	4900	5316	5770	6836	8225	1.081	0.925
	240	2977	3111	3258	3428	3615	3817	4064	4340	4638	4966	5678	6590	1.063	0.945
	270	3290	3382	3484	3603	3738	3883	4040	4220	4421	4635	5166	5757	1.039	0.974
	300	3751	3818	3898	3987	4085	4190	4308	4446	4598	4760	5126	5537	1.018	0.989
	330	4309	4363	4424	4490	4563	4657	4757	4865	4980	5102	5392	5713	1.003	1.002
	360	4962	5010	5063	5121	5189	5264	5344	5432	5530	5633	5859	6110	0.996	1.010
	390	5719	5761	5807	5859	5920	5986	6058	6135	6217	6304	6496	6712	0.992	1.020
	420	6682	6718	6755	6797	6842	6892	6951	7016	7086	7160	7324	7507	0.983	1.026
	450	7743	7774	7811	7855	7896	7943	7994	8050	8114	8189	8353	8537	0.978	1.035
	480	9137	9161	9189	9221	9258	9299	9341	9386	9436	9489	9617	9778	0.961	1.042
	510	10,717	10,714	10,727	10,744	10,764	10,787	10,813	10,843	10,881	10,922	11,013	11,120	0.958	1.049
	540	12,495	12,480	12,467	12,470	12,482	12,497	12,514	12,534	12,557	12,583	12,651	12,730	0.951	1.068
	570	14,700	14,696	14,693	14,693	14,696	14,700	14,706	14,715	14,726	14,739	14,772	14,821	0.944	1.087
	600														
	630														
	660														
	MIL	15,306	15,306	15,306	15,306	15,306	15,306	15,306	15,306	15,305	15,305	15,303	15,300	0.844	1.050
	VMAX	576	576	576	576	576	576	576	576	576	576	576	575	0.967	0.981
	MAX ENDURANCE														
	KTAS	207	216	225	233	241	249	256	261	263	269	282	295	1.035	0.964
	FUEL FLOW	2849	3040	3231	3423	3615	3808	4002	4196	4414	4635	5081	5531	1.038	0.961
	MAX RANGE														
	KTAS	261	267	277	286	295	304	309	315	323	330	346	361	1.035	0.964
	FUEL FLOW	3172	3347	3570	3796	4021	4246	4422	4633	4877	5108	5609	6125	1.038	0.961

Figure B4-3. (Sheet 9)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 300	MIL		––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	10,348	1.029	0.956
	VMIN		–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	193	1.039	0.963
	180		3372	3722	4114	4529	5008	5574	6257	7017	7925	10,088		1.109	0.900
	210		3129	3363	3623	3909	4235	4600	5002	5421	5887	6959	8366	1.079	0.922
	240		3233	3379	3547	3732	3931	4183	4466	4766	5095	5824	6743	1.064	0.941
	270		3545	3646	3764	3897	4041	4198	4383	4584	4797	5329	5931	1.039	0.974
	300		4030	4107	4196	4292	4398	4522	4665	4816	4977	5339	5746	1.018	0.990
	330		4637	4700	4770	4846	4938	5038	5145	5259	5379	5667	5985	1.003	1.003
	360		5368	5424	5485	5552	5625	5703	5789	5885	5988	6211	6459	0.995	1.012
	390		6214	6260	6310	6369	6435	6505	6580	6661	6746	6936	7150	0.990	1.021
	420		7267	7303	7343	7387	7435	7493	7561	7635	7719	7903	8109	0.983	1.028
	450		8539	8579	8623	8664	8710	8760	8814	8876	8949	9110	9291	0.968	1.040
	480		10,074	10,099	10,129	10,162	10,200	10,239	10,281	10,327	10,376	10,496	10,649	0.959	1.045
	510		11,733	11,744	11,759	11,776	11,797	11,822	11,850	11,886	11,925	12,012	12,115	0.962	1.053
	540		13,708	13,687	13,686	13,697	13,711	13,728	13,748	13,771	13,799	13,870	13,954	0.946	1.074
	570														
	600														
	630														
	660														
	MIL		15,149	15,151	15,153	15,153	15,152	15,151	15,149	15,148	15,146	15,140	15,133	0.845	1.058
	VMAX		557	557	558	558	558	557	557	557	557	556	555	0.961	0.992
	MAX ENDURANCE														
	KTAS		211	219	227	235	243	250	258	261	268	281	294	1.035	0.964
	FUEL FLOW		3129	3329	3529	3729	3930	4132	4345	4562	4794	5259	5728	1.038	0.961
	MAX RANGE														
	KTAS		261	270	279	287	296	304	312	321	329	344	357	1.035	0.964
	FUEL FLOW		3423	3639	3869	4100	4339	4573	4830	5100	5370	5887	6397	1.038	0.961

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 350	MIL			––––	––––	––––	––––	––––	––––	––––	––––	10,199	10,360	1.029	0.955
	VMIN			–––	–––	–––	–––	–––	–––	–––	–––	180	194	1.039	0.964
	180			3789	4190	4608	5089	5666	6352	7125	8039			1.106	0.903
	210			3448	3711	3999	4332	4699	5104	5532	6004	7089	8507	1.077	0.919
	240			3500	3666	3849	4046	4307	4592	4893	5224	5970	6895	1.063	0.941
	270			3807	3924	4057	4200	4363	4549	4748	4958	5492	6117	1.037	0.974
	300			4317	4407	4508	4618	4742	4884	5034	5193	5552	5956	1.017	0.990
	330			4988	5056	5130	5222	5320	5425	5538	5657	5942	6257	1.002	1.004
	360			5790	5849	5915	5985	6062	6146	6241	6342	6562	6816	0.994	1.013
	390			6712	6761	6819	6883	6952	7026	7105	7189	7384	7618	0.990	1.022
	420			7893	7938	7987	8041	8105	8176	8253	8335	8516	8718	0.976	1.034
	450			9350	9392	9432	9476	9525	9578	9638	9710	9863	10,036	0.962	1.044
	480			10,976	11,004	11,035	11,072	11,109	11,150	11,194	11,241	11,358	11,508	0.963	1.047
	510			12,761	12,774	12,789	12,809	12,831	12,858	12,891	12,928	13,012	13,120	0.963	1.057
	540														
	570														
	600														
	630														
	660														
	MIL			15,016	15,017	15,016	15,015	15,013	15,012	15,010	15,007	15,000	14,992	0.845	1.064
	VMAX			540	540	540	540	540	539	539	539	538	537	0.955	0.996
	MAX ENDURANCE														
	KTAS			216	225	232	240	247	254	261	268	281	294	1.035	0.964
	FUEL FLOW			3420	3628	3837	4046	4263	4486	4711	4951	5436	5925	1.038	0.961
	MAX RANGE														
	KTAS			266	276	285	293	302	309	317	325	335	345	1.035	0.964
	FUEL FLOW			3745	4005	4254	4502	4770	5030	5291	5558	6030	6504	1.038	0.961

Figure B4-3. (Sheet 10)

Subsonic Cruise — 4000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
			TOTAL FUEL FLOW LB/HR											
MIL			−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	10,208	10,372	1.029	0.955
VMIN			−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	181	195	1.039	0.964
180			3856	4266	4687	5171	5759	6447	7233	8151			1.105	0.903
210			3534	3798	4092	4430	4798	5206	5646	6121	7222	8648	1.076	0.921
240			3621	3784	3965	4163	4431	4718	5020	5353	6116	7047	1.061	0.943
270			3969	4084	4217	4366	4531	4716	4912	5120	5654	6304	1.033	0.977
300			4538	4631	4731	4840	4963	5103	5252	5410	5766	6173	1.015	0.993
330			5278	5343	5415	5505	5602	5706	5817	5935	6216	6547	1.000	1.006
360			6157	6214	6277	6346	6421	6503	6597	6699	6927	7190	0.993	1.015
390			7165	7212	7270	7334	7409	7490	7576	7668	7873	8105	0.988	1.027
420			8521	8564	8611	8663	8726	8796	8871	8951	9129	9328	0.969	1.039
450			10,111	10,151	10,189	10,231	10,277	10,328	10,386	10,454	10,605	10,776	0.964	1.046
480			11,852	11,878	11,908	11,943	11,979	12,018	12,060	12,107	12,220	12,368	0.966	1.049
510			13,862	13,874	13,890	13,909	13,932	13,960	13,995	14,034	14,123	14,228	0.955	1.059
540														
570														
600														
630														
660														
MIL			14,890	14,889	14,888	14,887	14,885	14,883	14,881	14,876	14,861	14,844	0.845	1.062
VMAX			523	523	523	523	523	522	522	522	520	519	0.951	0.997
			MAX ENDURANCE											
KTAS			216	224	232	240	247	254	261	268	281	293	1.035	0.964
FUEL FLOW			3511	3726	3943	4163	4394	4626	4858	5109	5613	6130	1.038	0.961
			MAX RANGE											
KTAS			265	274	280	288	296	303	310	318	327	338	1.035	0.964
FUEL FLOW			3895	4148	4357	4621	4887	5159	5424	5696	6167	6697	1.038	0.961

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

Figure B4-3. (Sheet 11)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––						
VMIN	–––	–––	–––	–––	–––	–––	–––	–––						
180	2433	2741	3087	3452	3886	4392	5035	5744					1.105	0.912
210	2176	2384	2625	2890	3185	3510	3889	4286					1.084	0.920
240	2132	2256	2418	2613	2823	3060	3315	3593					1.076	0.935
270	2216	2302	2417	2554	2702	2866	3056	3259					1.057	0.962
300	2388	2463	2555	2657	2767	2890	3029	3176					1.042	0.977
330	2627	2693	2766	2846	2936	3033	3138	3249					1.028	0.991
360	2932	2985	3046	3113	3186	3264	3349	3442					1.017	0.998
390	3277	3320	3367	3423	3484	3551	3623	3700					1.007	1.005
420	3676	3711	3749	3791	3837	3892	3954	4020					0.997	1.011
450	4104	4135	4170	4205	4242	4282	4326	4380					0.988	1.018
480	4595	4617	4641	4669	4701	4737	4775	4816					0.982	1.023
510	5149	5165	5181	5201	5223	5248	5277	5313					0.978	1.037
540	5865	5880	5898	5917	5939	5964	5992	6022					0.967	1.039
570	6699	6708	6719	6732	6749	6769	6790	6813					0.967	1.142
600	8752	8764	8776	8791	8807	8826	8848	8871					0.839	1.282
630	13,141	13,160	13,181	13,204	13,229	13,257	13,287	13,317					0.748	1.337
660														
MIL	14,551	14,550	14,550	14,549	14,548	14,547	14,545	14,544					0.848	1.050
VMAX	638	638	638	638	638	638	637	637					1.012	0.980
MAX ENDURANCE														
KTAS	232	250	257	257	266	276	286	295					1.036	0.963
FUEL FLOW	2130	2251	2392	2543	2701	2860	3018	3175					1.039	0.960
MAX RANGE														
KTAS	319	322	325	339	352	366	379	386					1.036	0.963
FUEL FLOW	2526	2618	2721	2919	3117	3318	3516	3658					1.039	0.960

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	8747		1.035	0.946
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	181		1.037	0.964
180	2489	2799	3148	3521	3957	4468	5118	5839	6717	7679			1.113	0.899
210	2249	2459	2701	2968	3264	3597	3978	4378	4806	5306	5872		1.093	0.913
240	2222	2362	2525	2717	2925	3163	3420	3704	4024	4360	4736		1.076	0.927
270	2342	2445	2560	2696	2844	3006	3194	3394	3609	3864	4135		1.060	0.956
300	2570	2649	2740	2840	2949	3070	3208	3354	3510	3685	3877		1.042	0.974
330	2863	2927	2998	3075	3163	3260	3363	3473	3594	3730	3874		1.025	0.990
360	3219	3271	3331	3396	3467	3544	3627	3719	3816	3919	4028		1.013	0.998
390	3622	3663	3709	3763	3824	3889	3960	4035	4116	4202	4294		1.002	1.006
420	4089	4124	4160	4201	4246	4301	4361	4425	4494	4569	4648		0.992	1.012
450	4595	4624	4658	4692	4728	4768	4811	4863	4922	4985	5055		0.981	1.020
480	5169	5189	5213	5241	5277	5318	5362	5410	5462	5519	5588		0.982	1.027
510	5911	5927	5946	5968	5993	6022	6056	6098	6144	6192	6245		0.978	1.044
540	6858	6867	6880	6898	6918	6941	6966	6995	7027	7064	7104		0.958	1.043
570	7906	7913	7922	7932	7945	7961	7979	7998	8020	8044	8071		0.956	1.169
600	10,675	10,678	10,683	10,690	10,699	10,714	10,736	10,761	10,787	10,816	10,847		0.817	1.324
630														
660														
MIL	14,452	14,452	14,452	14,451	14,451	14,450	14,449	14,448	14,448	14,447	14,446		0.848	1.050
VMAX	622	622	622	622	622	621	621	621	621	621	621		1.015	0.973
MAX ENDURANCE														
KTAS	226	238	249	257	263	272	281	290	299	306	313		1.036	0.963
FUEL FLOW	2213	2362	2515	2669	2834	3004	3172	3341	3509	3677	3843		1.039	0.960
MAX RANGE														
KTAS	297	311	321	327	339	351	362	374	384	386	393		1.036	0.963
FUEL FLOW	2546	2743	2911	3043	3246	3450	3651	3853	4053	4156	4325		1.039	0.960

Figure B4-3. (Sheet 12)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	8834	9020	1.034	0.947
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	189	205	1.038	0.964
180	2545	2856	3208	3589	4028	4546	5201	5934	6821	7805			1.112	0.901
210	2325	2534	2778	3046	3344	3683	4068	4470	4908	5410	6670	8337	1.090	0.908
240	2328	2470	2632	2822	3027	3266	3524	3816	4137	4475	5289	6234	1.075	0.925
270	2488	2590	2704	2839	2985	3146	3332	3530	3746	4006	4566	5231	1.056	0.953
300	2758	2835	2924	3023	3130	3250	3387	3532	3687	3864	4271	4747	1.038	0.973
330	3098	3160	3229	3305	3391	3486	3588	3697	3817	3952	4265	4625	1.021	0.991
360	3506	3557	3615	3679	3748	3823	3905	3996	4092	4195	4424	4722	1.009	1.000
390	3966	4006	4051	4104	4163	4227	4297	4371	4451	4536	4728	4966	0.997	1.009
420	4503	4536	4572	4612	4656	4709	4768	4834	4908	4990	5176	5384	0.987	1.014
450	5092	5126	5164	5203	5244	5289	5339	5398	5466	5539	5699	5881	0.984	1.025
480	5845	5868	5895	5926	5961	6001	6044	6090	6140	6196	6337	6493	0.978	1.033
510	6744	6757	6774	6794	6818	6845	6877	6917	6960	7007	7112	7253	0.971	1.047
540	7862	7866	7875	7892	7911	7934	7959	7988	8021	8058	8143	8239	0.955	1.047
570	9160	9165	9172	9180	9190	9202	9216	9232	9250	9269	9320	9381	0.950	1.199
600	12,859	12,852	12,847	12,844	12,843	12,850	12,870	12,893	12,917	12,944	13,004	13,084	0.792	1.280
630														
660														
MIL	14,366	14,366	14,366	14,366	14,366	14,365	14,364	14,363	14,361	14,359	14,355	14,350	0.848	1.051
VMAX	609	609	609	609	609	609	609	608	608	608	608	607	1.009	0.972
MAX ENDURANCE														
KTAS	222	233	243	253	261	270	279	287	295	304	318	329	1.036	0.963
FUEL FLOW	2301	2464	2628	2793	2966	3146	3325	3503	3681	3863	4239	4625	1.039	0.960
MAX RANGE														
KTAS	287	300	314	321	326	337	348	359	369	381	386	393	1.036	0.963
FUEL FLOW	2631	2836	3050	3211	3347	3559	3772	3982	4191	4419	4674	5001	1.039	0.960

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	8843	9034	1.034	0.947
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	190	206	1.038	0.964
180	2602	2914	3269	3658	4099	4626	5284	6029	6924	7931			1.112	0.902
210	2402	2609	2855	3124	3423	3770	4157	4563	5010	5514	6793	8493	1.088	0.910
240	2437	2578	2738	2926	3129	3369	3632	3927	4250	4589	5420	6384	1.073	0.927
270	2635	2735	2847	2981	3126	3286	3469	3666	3887	4148	4711	5394	1.050	0.956
300	2946	3021	3109	3206	3312	3431	3566	3710	3868	4051	4455	4930	1.033	0.976
330	3334	3394	3461	3534	3619	3713	3814	3921	4045	4189	4503	4861	1.016	0.994
360	3794	3843	3899	3962	4029	4103	4184	4276	4374	4480	4725	5025	1.005	1.003
390	4310	4349	4393	4444	4502	4566	4635	4711	4800	4897	5111	5347	0.994	1.013
420	4928	4964	5004	5049	5099	5159	5226	5298	5376	5460	5643	5848	0.987	1.019
450	5667	5699	5736	5774	5814	5858	5906	5965	6031	6102	6259	6439	0.982	1.029
480	6535	6557	6582	6612	6645	6684	6725	6770	6818	6873	7012	7172	0.975	1.038
510	7596	7605	7622	7643	7668	7696	7730	7772	7819	7870	7983	8140	0.969	1.051
540	8934	8933	8936	8950	8968	8988	9011	9038	9068	9104	9184	9276	0.952	1.053
570	10,461	10,464	10,469	10,476	10,482	10,490	10,501	10,514	10,529	10,546	10,591	10,650	0.943	1.233
600														
630														
660														
MIL	14,230	14,231	14,232	14,233	14,234	14,234	14,233	14,232	14,231	14,230	14,227	14,223	0.852	1.053
VMAX	595	595	596	596	596	596	596	595	595	595	595	595	1.012	0.973
MAX ENDURANCE														
KTAS	221	232	242	252	257	263	271	279	288	295	309	321	1.036	0.963
FUEL FLOW	2390	2563	2738	2914	3093	3281	3469	3657	3851	4049	4447	4848	1.039	0.960
MAX RANGE														
KTAS	279	291	304	316	322	326	336	344	357	365	379	386	1.036	0.963
FUEL FLOW	2718	2932	3151	3365	3519	3662	3882	4073	4337	4544	4949	5285	1.039	0.960

Figure B4-3. (Sheet 13)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	8773	8949	9143	1.033	0.947
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	183	199	215	1.038	0.964
180	2972	3330	3726	4169	4706	5366	6123	7026	8057				1.124	0.897
210	2684	2931	3202	3506	3856	4246	4655	5112	5618	6227	7716		1.086	0.911
240	2687	2845	3031	3232	3472	3742	4039	4363	4704	5109	6013	7097	1.076	0.925
270	2880	2991	3123	3268	3426	3607	3808	4027	4290	4566	5188	5941	1.050	0.953
300	3207	3294	3389	3494	3611	3745	3894	4057	4238	4433	4854	5398	1.032	0.976
330	3627	3692	3764	3847	3940	4045	4159	4284	4429	4581	4912	5292	1.017	0.994
360	4129	4184	4247	4315	4390	4472	4570	4675	4787	4906	5176	5489	1.006	1.002
390	4695	4742	4800	4866	4938	5015	5098	5187	5283	5386	5608	5853	0.996	1.015
420	5444	5483	5527	5575	5634	5700	5771	5847	5929	6017	6208	6422	0.987	1.020
450	6273	6309	6345	6384	6427	6474	6531	6596	6666	6740	6912	7136	0.983	1.030
480	7265	7294	7327	7366	7409	7457	7508	7564	7628	7707	7879	8073	0.974	1.042
510	8536	8551	8569	8592	8618	8649	8690	8735	8783	8836	8968	9134	0.964	1.050
540	10,008	10,005	10,018	10,034	10,052	10,074	10,098	10,128	10,162	10,199	10,282	10,383	0.951	1.059
570	11,837	11,839	11,843	11,845	11,849	11,855	11,864	11,874	11,886	11,902	11,946	12,000	0.935	1.067
600														
630														
660														
MIL	14,130	14,131	14,132	14,133	14,133	14,133	14,132	14,132	14,131	14,131	14,129	14,126	0.852	1.052
VMAX	585	586	586	586	586	586	586	586	585	585	585	585	1.002	0.972
	MAX ENDURANCE													
KTAS	226	235	244	253	257	264	273	280	287	294	307	320	1.036	0.963
FUEL FLOW	2659	2843	3029	3216	3406	3604	3807	4014	4221	4429	4849	5271	1.039	0.960
	MAX RANGE													
KTAS	282	294	305	317	321	323	335	343	351	358	373	386	1.036	0.963
FUEL FLOW	3000	3223	3448	3675	3830	3953	4223	4441	4662	4884	5337	5782	1.039	0.960

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	8781	8963	9160	1.033	0.947
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	184	200	216	1.038	0.964
180	3029	3393	3794	4239	4786	5449	6216	7128	8182				1.122	0.897
210	2759	3008	3280	3590	3942	4336	4753	5214	5722	6348	7844		1.084	0.913
240	2795	2952	3135	3334	3576	3852	4150	4476	4819	5236	6147	7251	1.073	0.927
270	3025	3134	3266	3409	3566	3749	3950	4167	4431	4710	5350	6106	1.045	0.957
300	3393	3478	3573	3676	3792	3933	4085	4246	4425	4619	5036	5600	1.028	0.979
330	3861	3924	3996	4084	4181	4287	4402	4527	4670	4822	5149	5530	1.014	0.997
360	4423	4479	4544	4617	4697	4784	4881	4985	5096	5214	5481	5793	1.002	1.006
390	5090	5138	5194	5259	5329	5405	5487	5574	5668	5770	5990	6233	0.993	1.018
420	5924	5962	6005	6052	6109	6174	6243	6318	6399	6485	6684	6930	0.985	1.023
450	6848	6885	6924	6970	7020	7076	7143	7221	7304	7392	7591	7813	0.981	1.037
480	8084	8111	8143	8180	8222	8267	8317	8372	8433	8511	8681	8873	0.964	1.043
510	9465	9477	9494	9514	9538	9567	9606	9648	9694	9744	9872	10,037	0.962	1.052
540	11,096	11,088	11,098	11,112	11,128	11,148	11,170	11,197	11,229	11,264	11,343	11,439	0.948	1.069
570	13,268	13,268	13,270	13,268	13,267	13,269	13,273	13,279	13,288	13,300	13,338	13,386	0.934	1.086
600														
630														
660														
MIL	14,038	14,039	14,039	14,040	14,040	14,041	14,041	14,042	14,042	14,042	14,040	14,036	0.848	1.052
VMAX	576	576	576	576	577	577	577	577	577	577	576	576	0.978	0.973
	MAX ENDURANCE													
KTAS	219	229	237	246	254	258	265	273	280	286	300	314	1.036	0.963
FUEL FLOW	2747	2940	3135	3331	3528	3733	3948	4164	4381	4598	5036	5489	1.039	0.960
	MAX RANGE													
KTAS	273	285	296	307	312	321	325	333	342	351	367	384	1.036	0.963
FUEL FLOW	3063	3294	3524	3759	3929	4158	4333	4559	4811	5066	5582	6114	1.039	0.960

Figure B4-3. (Sheet 14)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−1°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 300	MIL		––––	––––	––––	––––	––––	––––	––––	––––	8790	8976	9177	1.033	0.947
	VMIN		–––	–––	–––	–––	–––	–––	–––	–––	185	201	217	1.038	0.964
	180		3457	3862	4310	4866	5531	6310	7230	8306				1.125	0.893
	210		3084	3358	3675	4029	4425	4851	5316	5825	6468	7984		1.086	0.914
	240		3059	3240	3436	3683	3962	4262	4589	4940	5364	6287	7404	1.071	0.926
	270		3278	3408	3551	3708	3894	4093	4307	4573	4853	5512	6271	1.047	0.958
	300		3663	3756	3862	3984	4124	4275	4435	4613	4804	5218	5803	1.026	0.980
	330		4170	4242	4329	4427	4533	4646	4770	4912	5062	5387	5785	1.012	0.998
	360		4798	4863	4934	5011	5097	5193	5296	5405	5521	5786	6108	1.000	1.007
	390		5533	5588	5651	5720	5795	5875	5961	6054	6154	6374	6641	0.992	1.019
	420		6442	6483	6529	6587	6655	6732	6816	6910	7010	7228	7475	0.985	1.030
	450		7577	7618	7663	7712	7767	7832	7908	7989	8076	8271	8489	0.970	1.039
	480		8928	8957	8991	9030	9072	9119	9169	9227	9301	9462	9645	0.961	1.043
	510		10,399	10,413	10,432	10,454	10,480	10,517	10,557	10,601	10,649	10,774	10,939	0.961	1.056
	540		12,175	12,184	12,196	12,211	12,230	12,252	12,279	12,311	12,347	12,428	12,529	0.949	1.076
	570														
	600														
	630														
	660														
	MIL		13,890	13,890	13,890	13,890	13,889	13,888	13,886	13,884	13,881	13,873	13,862	0.849	1.053
	VMAX		562	562	562	562	562	562	562	562	561	561	560	0.966	0.982
	MAX ENDURANCE														
	KTAS		223	231	240	248	256	263	271	278	285	299	312	1.036	0.963
	FUEL FLOW		3029	3232	3436	3644	3859	4081	4306	4532	4760	5217	5711	1.039	0.960
	MAX RANGE														
	KTAS		277	288	295	305	313	323	332	340	348	361	374	1.036	0.963
	FUEL FLOW		3360	3598	3800	4047	4280	4535	4798	5059	5312	5802	6322	1.039	0.960

*TEMPERATURE DEVIATION FROM STANDARD DAY. ––– VMIN LESS THAN 180 KTAS.

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 350	MIL			––––	––––	––––	––––	––––	––––	––––	8799	8989	9194	1.032	0.947
	VMIN			–––	–––	–––	–––	–––	–––	–––	186	202	219	1.039	0.964
	180			3930	4379	4945	5613	6404	7331	8429				1.129	0.886
	210			3436	3759	4115	4514	4950	5417	5929	6588	8134		1.085	0.912
	240			3344	3539	3792	4072	4373	4702	5066	5491	6434	7558	1.069	0.925
	270			3551	3693	3855	4039	4236	4447	4715	4996	5673	6436	1.050	0.960
	300			3949	4056	4176	4316	4465	4624	4800	4990	5414	6005	1.025	0.981
	330			4492	4578	4675	4779	4891	5013	5154	5303	5636	6042	1.011	0.999
	360			5181	5250	5326	5410	5505	5606	5714	5832	6104	6443	0.998	1.009
	390			5982	6044	6111	6184	6263	6349	6446	6557	6802	7074	0.993	1.023
	420			7019	7072	7136	7208	7287	7371	7463	7561	7777	8021	0.977	1.033
	450			8313	8357	8405	8457	8521	8594	8673	8755	8940	9148	0.964	1.039
	480			9743	9775	9813	9853	9898	9947	10,003	10,075	10,235	10,416	0.963	1.046
	510			11,333	11,349	11,369	11,394	11,428	11,466	11,508	11,554	11,676	11,849	0.963	1.059
	540			13,361	13,371	13,384	13,401	13,420	13,445	13,475	13,508	13,585		0.963	1.072
	570														
	600														
	630														
	660														
	MIL			13,700	13,699	13,697	13,694	13,691	13,687	13,682	13,677	13,663	13,645	0.853	1.050
	VMAX			544	544	544	544	544	543	543	542	541	539	0.961	0.989
	MAX ENDURANCE														
	KTAS			230	238	247	255	263	270	278	285	299	312	1.036	0.963
	FUEL FLOW			3325	3537	3758	3982	4212	4447	4682	4919	5411	5931	1.039	0.960
	MAX RANGE														
	KTAS			283	292	302	313	321	324	332	339	353	364	1.036	0.963
	FUEL FLOW			3699	3942	4209	4483	4743	4923	5180	5437	5984	6511	1.039	0.960

Figure B4-3. (Sheet 15)

Subsonic Cruise — 8000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
			TOTAL FUEL FLOW LB/HR											
MIL			––––	––––	––––	––––	––––	––––	––––	8809	9001	9212	1.032	0.947
VMIN			–––	–––	–––	–––	–––	–––	–––	187	203	220	1.039	0.964
180			3998	4449	5024	5695	6498	7432	8552				1.129	0.887
210			3517	3844	4201	4603	5048	5519	6039	6707	8283		1.084	0.913
240			3449	3645	3900	4181	4484	4815	5191	5619	6581	7711	1.069	0.927
270			3695	3842	4002	4184	4379	4587	4856	5149	5834	6612	1.047	0.963
300			4145	4250	4369	4508	4656	4813	4988	5176	5615	6207	1.021	0.984
330			4743	4827	4922	5025	5136	5257	5396	5547	5895	6302	1.008	1.002
360			5499	5567	5641	5723	5818	5923	6034	6154	6442	6782	0.997	1.011
390			6379	6443	6516	6598	6686	6781	6884	6995	7238	7507	0.988	1.028
420			7582	7633	7695	7766	7843	7926	8016	8113	8323	8564	0.970	1.037
450			8995	9036	9081	9130	9190	9260	9335	9415	9597	9801	0.964	1.041
480			10,529	10,559	10,595	10,634	10,677	10,724	10,779	10,850	11,008	11,186	0.964	1.048
510			12,300	12,316	12,335	12,360	12,395	12,435	12,479	12,527	12,657	12,838	0.950	1.065
540														
570														
600														
630														
660														
MIL			13,508	13,506	13,503	13,499	13,495	13,488	13,481	13,473	13,455	13,421	0.858	1.040
VMAX			527	527	527	527	526	526	525	524	523	520	0.958	0.988
						MAX ENDURANCE								
KTAS			230	238	246	255	262	270	277	285	298	312	1.036	0.963
FUEL FLOW			3417	3641	3872	4104	4343	4587	4832	5079	5609	6150	1.039	0.960
						MAX RANGE								
KTAS			281	290	299	307	315	321	324	328	343	355	1.036	0.963
FUEL FLOW			3829	4090	4350	4610	4873	5107	5292	5507	6107	6682	1.039	0.960

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

Figure B4-3. (Sheet 16)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	----	----	----	----	----	----	----	----						
VMIN	---	---	---	---	---	---	---	---						
180	2500	2850	3242	3732	4334	5040	5894	6929					1.139	0.890
210	2163	2410	2691	3000	3370	3762	4188	4691					1.097	0.902
240	2033	2210	2411	2637	2886	3164	3478	3816					1.078	0.915
270	2065	2189	2331	2485	2670	2869	3085	3338					1.065	0.944
300	2191	2286	2391	2507	2643	2788	2944	3122					1.053	0.966
330	2386	2461	2544	2638	2740	2850	2973	3110					1.038	0.985
360	2639	2702	2771	2847	2929	3020	3118	3222					1.025	0.993
390	2933	2982	3040	3105	3175	3250	3332	3419					1.012	1.001
420	3275	3314	3358	3409	3469	3533	3603	3678					1.004	1.006
450	3652	3687	3723	3762	3806	3857	3917	3980					0.993	1.015
480	4075	4102	4131	4166	4204	4245	4290	4341					0.987	1.019
510	4560	4580	4602	4627	4655	4691	4730	4773					0.982	1.039
540	5196	5216	5239	5265	5294	5326	5361	5400					0.970	1.036
570	5892	5905	5921	5940	5961	5984	6009	6036					0.972	1.203
600	8042	8060	8081	8104	8130	8159	8189	8222					0.850	1.366
630	12,571	12,598	12,628	12,661	12,697	12,731	12,766	12,804					0.751	1.389
660														
MIL	13,372	13,369	13,365	13,361	13,356	13,352	13,347	13,343					0.850	1.051
VMAX	637	637	636	636	635	635	634	634					1.010	0.985
	MAX ENDURANCE													
KTAS	250	254	265	277	288	299	309	317					1.037	0.961
FUEL FLOW	2028	2175	2330	2483	2636	2788	2940	3091					1.040	0.959
	MAX RANGE													
KTAS	317	331	347	362	377	380	394	407					1.037	0.961
FUEL FLOW	2286	2467	2667	2864	3061	3168	3363	3562					1.040	0.959

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **--- VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	----	----	----	----	----	----	----	----	7480	7568	7666		1.036	0.940
VMIN	---	---	---	---	---	---	---	---	186	194	203		1.039	0.964
180	2552	2908	3303	3797	4405	5122	5985	7041					1.137	0.891
210	2229	2478	2760	3075	3448	3843	4276	4782	5377	6107	6931		1.095	0.902
240	2127	2302	2501	2726	2978	3261	3577	3916	4307	4734	5194		1.085	0.908
270	2191	2314	2455	2608	2790	2987	3205	3462	3734	4029	4352		1.066	0.937
300	2353	2447	2551	2665	2799	2944	3099	3276	3476	3687	3924		1.051	0.963
330	2589	2662	2744	2837	2938	3046	3167	3303	3450	3613	3790		1.038	0.983
360	2888	2949	3017	3092	3173	3263	3359	3462	3572	3696	3835		1.023	0.992
390	3233	3281	3338	3401	3470	3545	3625	3711	3804	3902	4007		1.008	1.002
420	3637	3675	3717	3767	3825	3889	3957	4031	4110	4196	4294		0.998	1.007
450	4080	4114	4149	4187	4230	4280	4339	4404	4481	4567	4657		0.988	1.016
480	4580	4609	4642	4683	4727	4775	4828	4888	4957	5030	5108		0.985	1.026
510	5243	5265	5291	5320	5354	5396	5442	5493	5547	5608	5678		0.977	1.044
540	6068	6085	6106	6130	6156	6186	6219	6255	6295	6337	6383		0.963	1.041
570	6996	7006	7018	7032	7048	7067	7087	7109	7136	7166	7199		0.959	1.249
600	9990	10,003	10,018	10,037	10,066	10,096	10,130	10,166	10,204	10,246	10,295		0.814	1.322
630														
660														
MIL	13,184	13,182	13,181	13,180	13,178	13,176	13,174	13,172	13,170	13,167	13,165		0.855	1.039
VMAX	618	618	617	617	617	617	617	617	616	616	616		1.016	0.970
	MAX ENDURANCE													
KTAS	239	251	259	270	280	290	300	309	317	325	334		1.037	0.961
FUEL FLOW	2127	2283	2443	2608	2772	2936	3099	3261	3430	3609	3786		1.040	0.959
	MAX RANGE													
KTAS	317	319	334	347	360	373	380	386	398	409	413		1.037	0.961
FUEL FLOW	2470	2571	2774	2976	3176	3376	3527	3670	3876	4078	4220		1.040	0.959

Figure B4-3. (Sheet 17)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	----	----	----	----	----	----	----	----	7488	7580	7772	7966	1.034	0.939
VMIN	---	---	---	---	---	---	---	---	187	195	213	231	1.039	0.964
180	2603	2966	3364	3863	4476	5204	6075	7153					1.135	0.891
210	2296	2546	2829	3150	3526	3923	4364	4873	5484	6217			1.092	0.904
240	2222	2395	2591	2816	3070	3358	3676	4016	4417	4848	5861	7158	1.083	0.907
270	2317	2439	2579	2731	2911	3106	3328	3586	3860	4156	4854	5717	1.070	0.936
300	2515	2608	2710	2823	2956	3099	3253	3438	3636	3846	4347	4949	1.052	0.964
330	2793	2864	2944	3036	3135	3242	3362	3502	3654	3818	4190	4605	1.037	0.984
360	3137	3197	3264	3336	3416	3505	3600	3705	3816	3944	4254	4596	1.019	0.994
390	3533	3580	3636	3698	3766	3839	3918	4004	4100	4211	4453	4739	1.004	1.004
420	3998	4035	4077	4125	4184	4251	4326	4410	4500	4596	4807	5039	0.995	1.012
450	4529	4568	4608	4652	4701	4758	4825	4897	4975	5059	5242	5446	0.987	1.020
480	5185	5214	5247	5286	5328	5375	5426	5485	5553	5626	5786	5969	0.980	1.032
510	5981	6001	6025	6052	6084	6125	6169	6218	6270	6330	6473	6643	0.969	1.045
540	6950	6965	6985	7009	7035	7065	7098	7135	7175	7219	7320	7460	0.960	1.050
570	8175	8183	8192	8202	8213	8227	8243	8261	8283	8308	8366	8432	0.944	1.297
600	12,172	12,176	12,183	12,193	12,220	12,249	12,281	12,315	12,353	12,393	12,495	12,613	0.791	1.377
630														
660														
MIL	13,053	13,053	13,052	13,052	13,051	13,049	13,048	13,046	13,044	13,042	13,037	13,032	0.856	1.035
VMAX	605	605	605	604	604	604	604	604	604	604	603	602	1.012	0.969
	MAX ENDURANCE													
KTAS	235	247	258	268	278	288	298	307	316	318	333	348	1.037	0.961
FUEL FLOW	2219	2385	2555	2730	2905	3078	3252	3433	3616	3803	4190	4583	1.040	0.959
	MAX RANGE													
KTAS	309	317	321	333	346	358	370	380	380	381	401	419	1.037	0.961
FUEL FLOW	2583	2732	2858	3067	3281	3489	3698	3891	3988	4112	4570	5030	1.040	0.959

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
MIL	----	----	----	----	----	----	----	----	7496	7592	7785	7982	1.034	0.939
VMIN	---	---	---	---	---	---	---	---	187	197	214	232	1.039	0.964
180	2654	3024	3426	3930	4546	5286	6165	7264					1.134	0.893
210	2362	2614	2898	3225	3603	4005	4452	4963	5591	6327			1.090	0.906
240	2317	2488	2682	2906	3165	3455	3775	4116	4528	4961	5995	7326	1.080	0.910
270	2444	2564	2703	2854	3032	3228	3450	3711	3986	4283	4994	5884	1.066	0.941
300	2677	2769	2869	2981	3113	3255	3417	3601	3797	4005	4508	5126	1.047	0.968
330	2996	3065	3144	3234	3332	3440	3566	3707	3862	4026	4395	4815	1.034	0.988
360	3387	3445	3510	3581	3661	3751	3847	3956	4077	4211	4518	4857	1.015	0.996
390	3834	3879	3934	3996	4064	4144	4233	4330	4434	4545	4785	5068	1.001	1.010
420	4382	4423	4470	4525	4590	4661	4737	4820	4909	5003	5212	5442	0.991	1.016
450	5033	5070	5109	5152	5199	5255	5321	5392	5468	5551	5731	5934	0.983	1.025
480	5793	5820	5851	5889	5930	5975	6025	6082	6150	6223	6402	6618	0.975	1.038
510	6738	6758	6782	6811	6844	6886	6933	6984	7039	7104	7261	7437	0.968	1.050
540	7893	7904	7922	7943	7967	7994	8025	8060	8098	8139	8235	8374	0.956	1.060
570	9424	9430	9435	9440	9447	9457	9468	9482	9500	9523	9575	9637	0.931	1.335
600														
630														
660														
MIL	12,887	12,888	12,889	12,889	12,887	12,885	12,883	12,880	12,878	12,875	12,868	12,860	0.862	1.034
VMAX	591	592	592	592	591	591	591	591	591	591	590	589	1.014	0.970
	MAX ENDURANCE													
KTAS	235	246	253	262	271	281	290	299	307	314	321	338	1.037	0.961
FUEL FLOW	2309	2485	2664	2848	3032	3217	3408	3600	3794	3988	4389	4809	1.040	0.959
	MAX RANGE													
KTAS	302	316	317	322	334	345	360	365	374	380	386	403	1.037	0.961
FUEL FLOW	2695	2908	3005	3156	3373	3588	3845	4015	4223	4412	4732	5211	1.040	0.959

Figure B4-3. (Sheet 18)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	**MIL**	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	7505	7603	7701	7901	8102	1.034	0.939
	VMIN	−−−	−−−	−−−	−−−	−−−	−−−	−−−	188	198	206	225	243	1.040	0.964
	180	3082	3486	3998	4617	5367	6254	7421						1.132	0.894
	210	2681	2968	3300	3681	4090	4539	5055	5698	6436	7339			1.096	0.905
	240	2580	2772	2996	3261	3552	3873	4221	4638	5074	5576	6740		1.081	0.911
	270	2689	2827	2977	3154	3353	3573	3835	4111	4418	4769	5547	6575	1.065	0.933
	300	2929	3029	3139	3271	3420	3581	3763	3958	4165	4400	4985	5651	1.046	0.966
	330	3267	3344	3434	3537	3648	3774	3918	4072	4234	4410	4808	5289	1.032	0.984
	360	3695	3760	3832	3912	4009	4114	4226	4345	4477	4626	4947	5316	1.014	0.997
	390	4196	4258	4326	4401	4483	4570	4666	4769	4878	4994	5247	5557	1.000	1.011
	420	4841	4887	4941	5004	5073	5149	5230	5317	5410	5511	5731	6011	0.990	1.017
	450	5573	5610	5652	5698	5753	5817	5887	5963	6054	6160	6390	6649	0.983	1.028
	480	6456	6492	6535	6581	6633	6690	6757	6836	6921	7011	7212	7436	0.976	1.041
	510	7568	7590	7616	7647	7687	7732	7781	7835	7898	7974	8140	8331	0.966	1.049
	540	8861	8877	8897	8920	8946	8977	9011	9048	9089	9134	9256	9411	0.954	1.072
	570	10,758	10,760	10,759	10,760	10,763	10,768	10,776	10,788	10,804	10,823	10,868	10,953	0.918	1.089
	600														
	630														
	660														
	MIL	12,748	12,749	12,749	12,748	12,747	12,746	12,744	12,742	12,740	12,738	12,733	12,727	0.867	1.030
	VMAX	581	581	581	581	581	581	581	581	580	580	580	579	1.013	0.969
	MAX ENDURANCE														
	KTAS	238	248	255	265	274	282	290	298	306	313	322	337	1.037	0.961
	FUEL FLOW	2580	2767	2957	3151	3351	3553	3755	3958	4162	4366	4801	5268	1.040	0.959
	MAX RANGE														
	KTAS	305	317	317	322	336	344	353	361	369	377	391	404	1.037	0.961
	FUEL FLOW	2975	3185	3284	3451	3715	3915	4137	4360	4584	4806	5257	5736	1.040	0.959

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

DRAG INDEX	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 250	**MIL**	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	7428	7515	7615	7713	7916	8124	1.034	0.939
	VMIN	−−−	−−−	−−−	−−−	−−−	−−−	180	189	199	208	226	245	1.039	0.964
	180	3140	3547	4065	4687	5448	6343							1.131	0.895
	210	2749	3041	3374	3758	4175	4627	5155	5804	6545	7474			1.094	0.906
	240	2673	2863	3087	3356	3649	3972	4328	4748	5186	5706	6875		1.079	0.914
	270	2814	2951	3100	3280	3477	3695	3959	4237	4556	4907	5708	6745	1.062	0.937
	300	3090	3188	3299	3437	3586	3746	3926	4119	4324	4564	5160	5837	1.041	0.969
	330	3472	3552	3645	3747	3860	3986	4129	4281	4443	4617	5026	5511	1.027	0.988
	360	3955	4025	4101	4186	4282	4385	4495	4613	4744	4891	5217	5609	1.010	1.001
	390	4540	4600	4667	4741	4821	4908	5002	5104	5212	5326	5584	5936	0.996	1.014
	420	5260	5304	5356	5418	5486	5560	5640	5728	5831	5950	6208	6492	0.987	1.022
	450	6093	6137	6187	6242	6308	6385	6469	6558	6656	6760	6988	7245	0.978	1.035
	480	7176	7209	7251	7296	7346	7401	7466	7544	7628	7717	7915	8133	0.969	1.040
	510	8382	8403	8428	8458	8497	8541	8589	8642	8705	8783	8954	9146	0.963	1.055
	540	9854	9868	9886	9906	9930	9958	9989	10,024	10,063	10,104	10,224	10,377	0.949	1.083
	570	12,152	12,150	12,142	12,136	12,133	12,132	12,134	12,140	12,151	12,165	12,200	12,280	0.935	1.111
	600														
	630														
	660														
	MIL	12,635	12,636	12,636	12,636	12,636	12,636	12,636	12,635	12,635	12,633	12,631	12,626	0.866	1.027
	VMAX	572	572	572	573	573	573	572	572	572	572	572	572	0.994	0.968
	MAX ENDURANCE														
	KTAS	231	241	250	258	267	275	283	290	298	306	319	333	1.037	0.961
	FUEL FLOW	2666	2863	3060	3267	3476	3687	3898	4110	4324	4539	5003	5497	1.040	0.959
	MAX RANGE														
	KTAS	295	307	314	317	325	334	344	354	363	373	382	391	1.037	0.961
	FUEL FLOW	3039	3265	3440	3587	3795	4028	4279	4532	4786	5048	5458	5943	1.040	0.959

Figure B4-3. (Sheet 19)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−9°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL		––– –	––– –	––– –	––– –	––– –	7436	7525	7626	7726	7932	8147	1.034	0.939
VMIN		–––	–––	–––	–––	–––	181	190	200	209	227	247	1.040	0.964
180		3608	4132	4757	5528	6435							1.134	0.887
210		3114	3449	3836	4259	4714	5256	5910	6653	7609			1.102	0.907
240		2953	3181	3452	3746	4070	4435	4857	5303	5836	7013		1.086	0.913
270		3075	3227	3406	3602	3817	4083	4367	4693	5046	5872	6915	1.060	0.935
300		3353	3467	3604	3752	3910	4089	4280	4484	4736	5336	6046	1.039	0.969
330		3765	3860	3962	4074	4198	4340	4491	4651	4832	5250	5732	1.024	0.989
360		4301	4376	4459	4554	4656	4765	4882	5013	5163	5505	5902	1.007	1.003
390		4943	5009	5081	5160	5245	5338	5439	5549	5679	5965	6314	0.995	1.016
420		5723	5779	5849	5928	6015	6109	6210	6318	6436	6692	6974	0.984	1.029
450		6751	6799	6853	6916	6992	7074	7162	7259	7361	7584	7832	0.971	1.036
480		7926	7964	8007	8054	8106	8169	8245	8326	8413	8606	8822	0.966	1.040
510		9233	9256	9284	9321	9362	9409	9459	9521	9599	9770	9962	0.960	1.058
540		10,864	10,879	10,898	10,920	10,946	10,976	11,011	11,050	11,093	11,219	11,384	0.948	1.097
570														
600														
630														
660														
MIL		12,480	12,480	12,480	12,479	12,478	12,477	12,474	12,471	12,468	12,460	12,436	0.868	1.027
VMAX		561	561	561	561	561	561	561	560	560	559	558	0.977	0.974
	MAX ENDURANCE													
KTAS		236	245	254	263	272	280	288	296	304	318	332	1.037	0.961
FUEL FLOW		2951	3160	3374	3593	3812	4033	4255	4479	4718	5203	5724	1.040	0.959
	MAX RANGE													
KTAS		294	305	315	323	333	342	351	358	369	379	380	1.037	0.961
FUEL FLOW		3289	3520	3753	3976	4237	4492	4741	4987	5287	5761	6146	1.040	0.959

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL			––– –	––– –	––– –	––– –	7444	7536	7637	7741	7948	8170	1.034	0.939
VMIN			–––	–––	–––	–––	182	191	201	210	229	249	1.040	0.964
180			4200	4827	5609	6539							1.139	0.874
210			3523	3913	4344	4802	5356	6016	6774				1.101	0.908
240			3275	3547	3843	4171	4542	4967	5430	5966	7171		1.088	0.913
270			3355	3533	3726	3940	4207	4502	4830	5185	6035	7085	1.065	0.934
300			3635	3771	3917	4075	4251	4442	4656	4908	5511	6257	1.037	0.970
330			4076	4177	4287	4410	4551	4701	4870	5054	5475	5954	1.021	0.991
360			4651	4732	4826	4927	5037	5156	5287	5449	5802	6195	1.007	1.003
390			5350	5421	5500	5590	5697	5812	5934	6064	6347	6693	0.993	1.022
420			6274	6345	6423	6508	6600	6700	6806	6923	7176	7454	0.978	1.031
450			7411	7463	7525	7597	7676	7760	7851	7950	8165	8410	0.967	1.036
480			8666	8707	8752	8802	8863	8939	9019	9105	9296	9511	0.965	1.042
510			10,084	10,110	10,145	10,184	10,228	10,277	10,337	10,415	10,594	10,803	0.961	1.062
540			11,949	11,966	11,987	12,011	12,040	12,073	12,109	12,149			0.957	1.082
570														
600														
630														
660														
MIL			12,248	12,245	12,241	12,236	12,230	12,223	12,214	12,205	12,173	12,119	0.877	1.018
VMAX			544	544	543	543	543	542	542	541	538	535	0.973	0.979
	MAX ENDURANCE													
KTAS			245	254	263	271	280	288	296	303	318	332	1.037	0.961
FUEL FLOW			3257	3480	3707	3936	4167	4398	4644	4895	5403	5950	1.040	0.959
	MAX RANGE													
KTAS			300	312	317	325	333	340	350	355	368	380	1.037	0.961
FUEL FLOW			3641	3901	4099	4339	4595	4833	5138	5374	5929	6491	1.040	0.959

Figure B4-3. (Sheet 20)

Subsonic Cruise — 12,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
			TOTAL FUEL FLOW LB/HR											
MIL			––––	––––	––––	––––	7453	7547	7648	7755	7968	8193	1.034	0.939
VMIN			–––	–––	–––	–––	183	192	202	211	231	251	1.040	0.964
180			4266	4902	5691	6645							1.137	0.874
210			3598	3990	4429	4889	5456	6122	6903				1.101	0.910
240			3368	3643	3940	4277	4648	5077	5557	6095	7330		1.086	0.915
270			3484	3660	3851	4062	4332	4638	4967	5324	6198	7254	1.063	0.936
300			3804	3938	4083	4239	4414	4612	4829	5080	5686	6467	1.035	0.973
330			4292	4393	4501	4622	4766	4925	5094	5281	5700	6192	1.019	0.993
360			4927	5008	5102	5205	5316	5445	5586	5748	6098	6495	1.005	1.009
390			5717	5797	5885	5981	6085	6199	6320	6449	6729	7078	0.987	1.025
420			6772	6841	6917	7001	7092	7189	7291	7406	7661	7941	0.972	1.034
450			8009	8058	8117	8187	8264	8346	8437	8533	8745	8989	0.966	1.039
480			9368	9406	9450	9499	9558	9632	9712	9797	9987	10,209	0.963	1.045
510			10,952	10,978	11,014	11,056	11,102	11,153	11,217	11,303	11,491	11,703	0.960	1.051
540														
570														
600														
630														
660														
MIL			11,993	11,988	11,981	11,972	11,962	11,950	11,937	11,919	11,863	11,792	0.886	1.000
VMAX			526	525	525	524	524	523	522	521	517	512	0.972	0.975
						MAX ENDURANCE								
KTAS			244	254	263	271	279	288	295	303	318	332	1.037	0.961
FUEL FLOW			3355	3585	3822	4060	4300	4551	4810	5071	5602	6187	1.040	0.959
						MAX RANGE								
KTAS			299	309	317	317	324	333	340	346	359	373	1.037	0.961
FUEL FLOW			3795	4049	4285	4433	4668	4964	5234	5510	6078	6708	1.040	0.959

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

Figure B4-3. (Sheet 21)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−17°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	––––	––––	––––	––––	6320	6420					1.043	0.937
VMIN	–––	–––	–––	–––	–––	–––	189	199					1.039	0.963
180	2615	3048	3586	4258	5077	6132							1.151	0.873
210	2196	2484	2831	3214	3634	4128	4723	5462					1.105	0.897
240	2007	2211	2446	2711	3019	3355	3744	4167					1.093	0.901
270	1972	2117	2285	2475	2683	2935	3204	3503					1.076	0.927
300	2037	2145	2273	2414	2568	2743	2940	3153					1.061	0.952
330	2181	2270	2368	2475	2595	2732	2878	3039					1.049	0.975
360	2385	2456	2535	2623	2719	2822	2933	3060					1.035	0.987
390	2630	2690	2757	2830	2909	2995	3088	3187					1.022	0.997
420	2922	2968	3024	3086	3153	3226	3304	3388					1.014	1.002
450	3256	3294	3336	3384	3441	3502	3569	3640					1.004	1.012
480	3626	3659	3696	3737	3782	3832	3888	3950					0.995	1.018
510	4059	4085	4116	4153	4195	4246	4303	4364					0.987	1.038
540	4595	4622	4653	4686	4723	4763	4807	4853					0.978	1.037
570	5489	5511	5536	5563	5592	5624	5660	5699					0.920	1.199
600	7755	7784	7816	7850	7886	7926	7968	8013					0.812	1.365
630	11,531	11,568	11,607	11,649	11,690	11,735	11,782	11,832					0.800	1.365
660														
MIL	12,190	12,182	12,173	12,163	12,153	12,142	12,131	12,119					0.854	1.046
VMAX	639	639	638	637	636	636	635	634					1.002	0.982
MAX ENDURANCE														
KTAS	259	273	286	298	310	312	323	337					1.038	0.960
FUEL FLOW	1968	2117	2265	2414	2564	2718	2876	3037					1.041	0.957
MAX RANGE														
KTAS	340	358	374	375	390	404	418	432					1.038	0.960
FUEL FLOW	2245	2444	2630	2715	2907	3096	3287	3478					1.041	0.957

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	6329	6430	6527	6626	6725		1.042	0.935
VMIN	–––	–––	–––	–––	–––	–––	190	200	210	220	230		1.039	0.963
180	2667	3102	3646	4328	5153	6244							1.141	0.884
210	2255	2546	2898	3284	3710	4207	4816	5557					1.103	0.898
240	2085	2287	2525	2795	3105	3442	3839	4265	4764	5319	5973		1.104	0.900
270	2080	2223	2389	2578	2789	3043	3314	3614	3954	4324	4754		1.082	0.917
300	2177	2284	2410	2551	2703	2882	3080	3291	3540	3806	4105		1.066	0.946
330	2358	2445	2542	2647	2766	2902	3052	3215	3400	3597	3805		1.049	0.968
360	2600	2671	2748	2835	2930	3032	3142	3270	3415	3578	3749		1.033	0.986
390	2891	2950	3015	3087	3165	3250	3342	3441	3553	3680	3826		1.020	0.997
420	3237	3281	3336	3396	3462	3534	3611	3704	3806	3915	4031		1.011	1.003
450	3628	3665	3706	3753	3812	3883	3960	4042	4131	4225	4326		1.002	1.015
480	4084	4123	4167	4216	4269	4329	4396	4469	4547	4630	4718		0.990	1.026
510	4678	4709	4744	4785	4831	4881	4935	4996	5064	5137	5214		0.978	1.037
540	5358	5383	5411	5441	5475	5513	5554	5598	5647	5703	5768		0.971	1.047
570	6564	6585	6609	6635	6664	6696	6733	6773	6817	6863	6912		0.900	1.255
600	9768	9794	9826	9863	9903	9947	9993	10,043	10,104	10,169	10,237		0.777	1.343
630														
660														
MIL	11,820	11,817	11,814	11,810	11,807	11,803	11,799	11,794	11,789	11,783	11,776		0.872	1.020
VMAX	612	612	612	612	611	611	611	610	610	610	609		1.018	0.967
MAX ENDURANCE														
KTAS	252	265	277	288	300	310	319	329	338	347	356		1.038	0.960
FUEL FLOW	2061	2220	2381	2541	2703	2868	3041	3214	3390	3568	3748		1.041	0.957
MAX RANGE														
KTAS	326	342	358	372	375	385	398	406	413	424	436		1.038	0.960
FUEL FLOW	2328	2529	2729	2927	3031	3211	3408	3571	3744	3955	4172		1.041	0.957

Figure B4-3. (Sheet 22)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	−−−−	−−−−	−−−−	−−−−	6251	6340	6441	6539	6640	6839	7063	1.041	0.934
VMIN	−−−	−−−	−−−	−−−	−−−	181	191	201	211	221	241	262	1.039	0.964
180	2719	3156	3705	4397	5229								1.140	0.885
210	2314	2611	2965	3353	3785	4288	4908	5656					1.101	0.900
240	2164	2364	2603	2879	3191	3530	3934	4363	4877	5434			1.096	0.904
270	2187	2330	2494	2681	2896	3152	3424	3730	4074	4446	5409	6616	1.085	0.919
300	2317	2423	2547	2687	2841	3023	3220	3429	3679	3955	4589	5390	1.064	0.947
330	2534	2620	2715	2820	2938	3078	3230	3395	3579	3775	4220	4803	1.048	0.968
360	2816	2885	2961	3047	3142	3244	3355	3494	3646	3807	4161	4573	1.035	0.987
390	3152	3210	3274	3345	3422	3509	3611	3723	3841	3967	4267	4602	1.017	1.001
420	3551	3594	3652	3718	3793	3874	3962	4057	4159	4267	4503	4775	1.006	1.008
450	4037	4079	4126	4180	4245	4315	4391	4472	4560	4653	4858	5087	0.995	1.018
480	4618	4655	4697	4744	4796	4855	4922	4994	5072	5154	5335	5555	0.982	1.031
510	5321	5350	5383	5423	5467	5515	5568	5628	5699	5778	5951	6145	0.970	1.040
540	6140	6164	6192	6222	6257	6295	6337	6382	6433	6494	6640	6803	0.968	1.065
570	7735	7752	7772	7796	7822	7851	7889	7931	7976	8025	8145	8309	0.877	1.311
600														
630														
660														
MIL	11,632	11,630	11,628	11,625	11,622	11,619	11,616	11,612	11,607	11,603	11,592	11,580	0.878	1.006
VMAX	599	599	598	598	598	598	598	597	597	597	596	595	1.017	0.965
MAX ENDURANCE														
KTAS	252	263	275	286	297	307	312	321	330	339	355	373	1.038	0.960
FUEL FLOW	2151	2321	2492	2663	2839	3020	3202	3390	3579	3771	4159	4556	1.041	0.957
MAX RANGE														
KTAS	315	330	345	360	374	375	374	385	396	406	427	437	1.038	0.960
FUEL FLOW	2409	2621	2834	3044	3259	3354	3457	3671	3897	4122	4572	4927	1.041	0.957

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	−−−−	−−−−	−−−−	−−−−	−−−−	6258	6350	6451	6551	6654	6859	7088	1.041	0.934
VMIN	−−−	−−−	−−−	−−−	−−−	181	192	202	212	223	243	264	1.039	0.964
180	2770	3211	3765	4467	5305								1.139	0.887
210	2373	2675	3031	3425	3861	4375	5001	5771					1.099	0.901
240	2243	2440	2685	2963	3277	3622	4029	4463	4990	5549			1.095	0.907
270	2295	2436	2599	2788	3003	3260	3534	3848	4194	4567	5557	6794	1.081	0.923
300	2457	2562	2685	2826	2984	3164	3359	3567	3817	4105	4741	5578	1.059	0.952
330	2710	2795	2889	2996	3116	3257	3412	3576	3759	3953	4408	4997	1.043	0.972
360	3032	3100	3176	3261	3356	3468	3588	3725	3876	4036	4390	4824	1.029	0.990
390	3413	3472	3539	3618	3704	3799	3902	4012	4130	4254	4552	4910	1.010	1.005
420	3901	3950	4010	4077	4151	4231	4317	4411	4512	4619	4853	5162	1.000	1.013
450	4475	4516	4562	4615	4678	4747	4822	4903	4989	5080	5310	5587	0.988	1.023
480	5152	5187	5228	5273	5323	5383	5452	5534	5624	5719	5928	6165	0.976	1.040
510	5993	6023	6058	6099	6145	6196	6252	6317	6391	6470	6643	6835	0.968	1.044
540	6979	7000	7024	7052	7083	7119	7158	7200	7248	7308	7454	7630	0.962	1.083
570	9067	9079	9098	9119	9143	9170	9204	9241	9282	9326	9437	9596	0.852	1.135
600														
630														
660														
MIL	11,437	11,437	11,433	11,430	11,426	11,421	11,416	11,410	11,404	11,397	11,382	11,363	0.887	0.997
VMAX	586	586	586	586	585	585	585	585	584	584	583	582	1.018	0.965
MAX ENDURANCE														
KTAS	247	257	267	279	289	298	307	312	318	326	345	363	1.038	0.960
FUEL FLOW	2239	2418	2598	2783	2973	3164	3356	3549	3749	3952	4374	4823	1.041	0.957
MAX RANGE														
KTAS	312	319	333	348	359	368	374	374	381	391	411	428	1.038	0.960
FUEL FLOW	2543	2697	2917	3148	3346	3542	3716	3837	4031	4266	4743	5247	1.041	0.957

Figure B4-3. (Sheet 23)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST | **CONDITIONS:** | **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	----	----	----	----	6264	6360	6462	6565	6668	6770	6995	7245	1.041	0.933
VMIN	---	---	---	---	182	193	203	214	224	234	256	278	1.039	0.964
180	3265	3824	4536	5380									1.147	0.878
210	2740	3098	3497	3936	4462	5093	5887						1.108	0.903
240	2516	2768	3048	3363	3715	4124	4573	5103	5663	6410			1.099	0.901
270	2542	2704	2897	3109	3368	3644	3967	4314	4693	5188	6277		1.083	0.926
300	2701	2824	2970	3127	3306	3499	3706	3966	4256	4560	5323	6281	1.067	0.953
330	2972	3069	3176	3298	3441	3594	3757	3938	4139	4355	4890	5573	1.043	0.974
360	3317	3397	3490	3592	3702	3821	3957	4107	4267	4437	4848	5312	1.029	0.989
390	3764	3834	3912	3997	4091	4193	4302	4418	4542	4684	5042	5444	1.007	1.006
420	4312	4371	4437	4509	4588	4673	4765	4865	4980	5115	5410	5766	0.997	1.014
450	4953	4998	5050	5112	5184	5272	5369	5473	5583	5703	5965	6255	0.985	1.031
480	5767	5813	5864	5920	5986	6064	6147	6236	6331	6432	6652	6902	0.975	1.035
510	6726	6759	6798	6843	6892	6945	7009	7083	7164	7252	7445	7657	0.970	1.046
540	7870	7894	7921	7952	7987	8026	8069	8118	8182	8260	8428	8613	0.957	1.102
570	10,440	10,455	10,473	10,494	10,518	10,549	10,584	10,623	10,665	10,710	10,854	11,026	0.834	1.162
600														
630														
660														
MIL	11,245	11,243	11,240	11,238	11,235	11,231	11,226	11,222	11,217	11,211	11,196	11,178	0.896	0.991
VMAX	575	575	575	574	574	574	574	573	573	573	572	571	1.021	0.964
	MAX ENDURANCE													
KTAS	250	261	271	281	290	299	307	312	320	329	343	355	1.038	0.960
FUEL FLOW	2507	2698	2897	3097	3298	3499	3701	3907	4130	4355	4823	5309	1.041	0.957
	MAX RANGE													
KTAS	312	322	336	345	355	365	374	377	387	397	410	424	1.038	0.960
FUEL FLOW	2794	2994	3228	3436	3650	3871	4093	4258	4508	4760	5271	5822	1.041	0.957

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	----	----	----	----	6271	6370	6472	6578	6682	6789	7019	7278	1.041	0.933
VMIN	---	---	---	---	183	194	204	215	225	236	258	281	1.039	0.964
180	3321	3883	4606	5470									1.145	0.879
210	2804	3165	3570	4011	4548	5185	6002						1.107	0.904
240	2593	2851	3132	3449	3807	4219	4683	5216	5778	6555			1.096	0.903
270	2649	2815	3006	3216	3477	3760	4085	4434	4834	5333	6451		1.080	0.927
300	2842	2970	3114	3270	3447	3639	3846	4115	4406	4711	5510	6470	1.064	0.957
330	3154	3252	3361	3483	3625	3776	3938	4124	4327	4548	5083	5806	1.039	0.978
360	3554	3635	3727	3827	3937	4054	4188	4340	4500	4685	5101	5570	1.023	0.994
390	4061	4130	4207	4290	4383	4484	4592	4708	4847	5010	5372	5770	1.002	1.009
420	4674	4732	4796	4867	4948	5047	5157	5277	5404	5539	5832	6184	0.992	1.025
450	5440	5493	5554	5629	5711	5799	5895	5997	6106	6225	6485	6768	0.979	1.033
480	6388	6432	6481	6536	6600	6677	6759	6849	6943	7044	7264	7513	0.972	1.036
510	7447	7479	7519	7563	7613	7668	7734	7811	7894	7982	8173	8385	0.965	1.054
540	8784	8804	8828	8856	8888	8924	8964	9009	9071	9149	9317	9502	0.948	1.119
570														
600														
630														
660														
MIL	11,091	11,090	11,090	11,089	11,087	11,085	11,083	11,081	11,078	11,075	11,060	11,043	0.901	0.986
VMAX	566	566	566	566	566	565	565	565	565	565	564	563	1.012	0.963
	MAX ENDURANCE													
KTAS	245	254	264	273	282	291	302	310	316	324	340	355	1.038	0.960
FUEL FLOW	2591	2795	3003	3212	3422	3632	3846	4070	4301	4539	5033	5562	1.041	0.957
	MAX RANGE													
KTAS	308	314	325	335	345	356	367	375	374	382	396	410	1.038	0.960
FUEL FLOW	2916	3088	3307	3531	3761	4009	4261	4484	4633	4901	5453	6032	1.041	0.957

Figure B4-3. (Sheet 24)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−17°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 300	**MIL**		––––	––––	––––	6280	6380	6484	6591	6696	6808	7049	7312	1.041	0.933
	VMIN		–––	–––	–––	184	195	205	216	227	238	261	284	1.039	0.964
	180		3942	4675	5562									1.147	0.870
	210		3231	3642	4086	4635	5277	6117						1.121	0.904
	240		2933	3216	3536	3899	4314	4793	5329	5892	6699			1.098	0.901
	270		2926	3115	3323	3585	3877	4203	4554	4974	5477	6625		1.079	0.926
	300		3115	3258	3413	3588	3779	3994	4264	4556	4864	5696	6671	1.068	0.956
	330		3440	3548	3668	3808	3959	4126	4314	4522	4742	5300	6040	1.038	0.979
	360		3873	3963	4063	4171	4289	4424	4580	4756	4941	5354	5849	1.021	0.993
	390		4426	4501	4584	4675	4783	4907	5040	5181	5342	5701	6109	0.998	1.016
	420		5125	5202	5285	5377	5476	5584	5703	5829	5963	6252	6606	0.987	1.027
	450		6026	6086	6159	6239	6326	6420	6521	6626	6742	6996	7277	0.975	1.032
	480		7052	7100	7153	7216	7292	7374	7463	7557	7657	7876	8124	0.968	1.039
	510		8218	8256	8299	8346	8399	8464	8541	8623	8711	8902	9113	0.961	1.058
	540		9727	9750	9777	9809	9846	9887	9934	10,001	10,088	10,275	10,482	0.944	1.067
	570														
	600														
	630														
	660														
	MIL		10,918	10,917	10,916	10,913	10,909	10,905	10,899	10,892	10,877	10,833	10,755	0.905	0.984
	VMAX		555	555	555	555	555	554	554	554	553	550	545	0.994	0.966
	MAX ENDURANCE														
	KTAS		251	261	271	281	290	298	307	315	324	339	355	1.038	0.960
	FUEL FLOW		2885	3102	3321	3540	3760	3993	4228	4469	4721	5246	5832	1.041	0.957
	MAX RANGE														
	KTAS		311	321	333	344	354	366	370	374	375	385	399	1.038	0.960
	FUEL FLOW		3218	3439	3696	3958	4211	4496	4695	4923	5101	5621	6247	1.041	0.957

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 350	**MIL**			––––	––––	6288	6390	6496	6605	6713	6828	7082	7351	1.041	0.933
	VMIN			–––	–––	185	196	207	218	229	240	264	288	1.039	0.966
	180			4744	5654									1.154	0.867
	210			3714	4161	4721	5368	6232						1.117	0.893
	240			3300	3626	3990	4409	4903	5442	6029				1.098	0.903
	270			3224	3430	3695	3994	4322	4678	5115	5621	6798		1.078	0.925
	300			3402	3556	3730	3926	4143	4412	4706	5042	5883	6878	1.066	0.951
	330			3734	3853	3992	4149	4317	4510	4717	4935	5529	6273	1.036	0.979
	360			4200	4301	4409	4527	4675	4839	5013	5198	5618	6131	1.019	0.994
	390			4808	4902	5007	5121	5244	5375	5515	5675	6038	6459	0.995	1.018
	420			5635	5717	5807	5905	6011	6129	6253	6387	6679	7030	0.983	1.027
	450			6615	6685	6763	6847	6938	7035	7139	7255	7506	7785	0.973	1.034
	480			7719	7770	7832	7907	7989	8077	8170	8270	8487	8735	0.965	1.042
	510			8994	9034	9080	9131	9196	9282	9375	9475	9693	9934	0.960	1.069
	540														
	570														
	600														
	630														
	660														
	MIL			10,643	10,635	10,624	10,612	10,598	10,580	10,551	10,518	10,442	10,348	0.922	0.976
	VMAX			538	538	537	536	535	534	532	530	525	519	0.991	0.967
	MAX ENDURANCE														
	KTAS			261	271	280	289	298	307	315	323	339	354	1.038	0.960
	FUEL FLOW			3201	3428	3657	3895	4139	4385	4637	4902	5482	6102	1.041	0.957
	MAX RANGE														
	KTAS			316	326	334	346	352	359	366	373	375	391	1.038	0.960
	FUEL FLOW			3562	3810	4040	4333	4565	4828	5095	5374	5773	6481	1.041	0.957

Figure B4-3. (Sheet 25)

Subsonic Cruise — 16,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
			TOTAL FUEL FLOW LB/HR											
MIL			––––	––––	6295	6400	6509	6618	6732	6848	7115	7396	1.041	0.933
VMIN			–––	–––	186	197	208	219	230	242	267	292	1.039	0.966
180			4812	5745									1.156	0.868
210			3787	4236	4807	5459	6347						1.115	0.895
240			3384	3717	4082	4512	5012	5555	6168				1.097	0.903
270			3333	3536	3810	4111	4440	4816	5256	5765	6971		1.075	0.927
300			3546	3699	3875	4076	4291	4561	4857	5226	6069	7086	1.063	0.954
330			3921	4040	4185	4342	4515	4706	4912	5130	5759	6506	1.032	0.983
360			4441	4543	4661	4789	4935	5098	5271	5458	5904	6413	1.014	0.998
390			5150	5243	5346	5459	5580	5710	5848	6013	6391	6808	0.991	1.021
420			6069	6150	6237	6333	6440	6557	6683	6816	7106	7453	0.979	1.029
450			7136	7205	7281	7364	7453	7550	7653	7767	8017	8294	0.970	1.036
480			8338	8387	8448	8523	8604	8691	8784	8890	9143	9431	0.963	1.052
510			9808	9853	9903	9958	10,030	10,117					0.949	1.060
540														
570														
600														
630														
660														
MIL			10,347	10,335	10,321	10,304	10,284	10,254	10,219	10,178	10,076	9945	0.938	0.963
VMAX			519	518	517	516	515	513	510	507	500	492	0.994	0.963
MAX ENDURANCE														
KTAS			261	270	280	289	298	307	315	323	339	354	1.038	0.960
FUEL FLOW			3299	3536	3778	4030	4285	4541	4805	5086	5726	6371	1.041	0.957
MAX RANGE														
KTAS			312	319	327	335	343	350	357	365	374	386	1.038	0.960
FUEL FLOW			3672	3891	4146	4409	4675	4948	5228	5526	6088	6741	1.041	0.957

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

Figure B4-3. (Sheet 26)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	−−−−	−−−−	−−−−	5305	5400	5493	5588					1.047	0.936
VMIN	−−−	−−−	−−−	−−−	191	203	214	226					1.039	0.962
180	2827	3433	4175	5217									1.155	0.872
210	2281	2646	3052	3524	4105	4846							1.123	0.897
240	2006	2253	2547	2871	3258	3681	4187	4759					1.112	0.898
270	1905	2088	2288	2532	2798	3097	3436	3818					1.088	0.909
300	1923	2062	2215	2389	2585	2797	3049	3320					1.065	0.925
330	2022	2126	2240	2376	2524	2685	2871	3072					1.051	0.952
360	2168	2251	2343	2444	2553	2681	2821	2981					1.045	0.979
390	2367	2436	2512	2596	2687	2786	2892	3012					1.031	0.992
420	2603	2662	2727	2798	2875	2958	3048	3151					1.022	1.001
450	2885	2930	2983	3042	3107	3178	3256	3350					1.011	1.010
480	3202	3241	3284	3333	3387	3455	3534	3618					1.002	1.021
510	3584	3621	3665	3713	3766	3826	3894	3966					0.988	1.029
540	4035	4065	4099	4138	4180	4225	4274	4335					0.989	1.107
570	5086	5113	5142	5174	5211	5253	5297	5344					0.874	1.288
600	7617	7656	7699	7746	7796	7852	7920	7993					0.759	1.265
630	10,437	10,480	10,526	10,575	10,628	10,685							0.849	1.196
660														
MIL	10,815	10,800	10,783	10,765	10,746	10,725	10,703	10,676					0.877	1.009
VMAX	636	635	634	633	632	631	629	628					1.003	0.972
	MAX ENDURANCE													
KTAS	275	289	302	318	333	346	360	369					1.039	0.959
FUEL FLOW	1904	2059	2215	2371	2524	2674	2821	2973					1.042	0.956
	MAX RANGE													
KTAS	369	369	386	403	418	430	440	447					1.039	0.959
FUEL FLOW	2216	2296	2484	2676	2864	3025	3177	3326					1.042	0.956

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	−−−−	−−−−	−−−−	5223	5314	5409	5504	5599	5694	5803	5921		1.047	0.935
VMIN	−−−	−−−	−−−	181	192	204	216	227	239	251	262		1.039	0.963
180	2878	3493	4237										1.153	0.872
210	2337	2706	3116	3592	4183	4949							1.121	0.900
240	2073	2325	2621	2947	3341	3769	4284	4859	5626				1.111	0.895
270	1998	2179	2381	2627	2894	3199	3540	3924	4406	4926	5550		1.098	0.905
300	2047	2185	2337	2512	2707	2917	3170	3450	3759	4094	4506		1.078	0.925
330	2177	2279	2392	2528	2676	2840	3028	3227	3441	3702	3992		1.058	0.948
360	2354	2436	2528	2627	2736	2862	3016	3180	3356	3548	3752		1.052	0.973
390	2593	2661	2736	2819	2909	3011	3129	3260	3410	3570	3738		1.031	0.991
420	2876	2934	2997	3067	3148	3242	3344	3454	3570	3694	3833		1.021	1.002
450	3208	3253	3313	3382	3457	3538	3626	3720	3822	3930	4044		1.009	1.013
480	3621	3667	3718	3776	3842	3914	3992	4076	4166	4261	4364		0.993	1.025
510	4141	4177	4219	4265	4316	4376	4443	4515	4592	4674	4761		0.982	1.029
540	4706	4733	4764	4799	4838	4880	4926	4987	5052	5122	5202		0.979	1.133
570	6168	6197	6228	6263	6304	6350	6399	6452	6510	6585	6663		0.841	1.349
600	9631	9671	9715	9763	9816	9873	9944	10,020	10,101				0.739	1.413
630														
660														
MIL	10,272	10,267	10,262	10,257	10,251	10,244	10,236	10,227	10,218	10,208	10,197		0.911	0.978
VMAX	604	604	604	603	603	602	602	601	601	600	599		1.024	0.961
	MAX ENDURANCE													
KTAS	270	283	295	308	321	335	346	356	367	369	377		1.039	0.959
FUEL FLOW	1998	2165	2333	2506	2673	2839	3009	3180	3353	3532	3723		1.042	0.956
	MAX RANGE													
KTAS	359	369	369	384	398	404	418	430	433	444	455		1.039	0.959
FUEL FLOW	2350	2488	2576	2772	2970	3113	3327	3531	3670	3878	4086		1.042	0.956

Figure B4-3. (Sheet 27)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	−−−−	−−−−	5228	5322	5418	5516	5611	5711	5824	6068	6302	1.048	0.934
VMIN	−−−	−−−	−−−	181	193	205	217	229	241	253	277	300	1.039	0.964
180	2928	3549	4298										1.151	0.874
210	2393	2765	3181	3666	4261	5053							1.122	0.902
240	2140	2398	2696	3025	3423	3863	4381	4963					1.107	0.902
270	2092	2271	2475	2721	2990	3301	3644	4044	4530	5053			1.092	0.914
300	2171	2308	2460	2635	2828	3037	3294	3580	3890	4246	5149		1.074	0.930
330	2332	2433	2545	2681	2832	2998	3184	3382	3600	3869	4482	5282	1.055	0.949
360	2541	2622	2712	2811	2925	3064	3216	3379	3553	3746	4194	4762	1.047	0.972
390	2819	2886	2961	3049	3151	3261	3379	3509	3658	3816	4184	4633	1.029	0.993
420	3156	3219	3290	3369	3454	3548	3649	3758	3873	3996	4308	4703	1.017	1.004
450	3579	3628	3688	3756	3830	3910	3997	4091	4192	4299	4565	4892	1.004	1.017
480	4085	4129	4179	4235	4301	4373	4451	4534	4627	4732	4973	5240	0.983	1.027
510	4698	4733	4773	4818	4867	4931	5004	5082	5166	5255	5450	5678	0.976	1.034
540	5405	5432	5462	5498	5538	5581	5629	5697	5771	5849	6019	6206	0.974	1.164
570	7391	7421	7454	7491	7535	7585	7639	7697	7761	7845	8026	8227	0.808	1.243
600														
630														
660														
MIL	10,050	10,046	10,042	10,038	10,033	10,027	10,020	10,013	10,005	9997	9977	9954	0.925	0.969
VMAX	590	590	590	590	589	589	588	588	588	587	586	584	1.026	0.960
	MAX ENDURANCE													
KTAS	266	278	290	301	317	328	338	348	358	368	373	388	1.039	0.959
FUEL FLOW	2090	2267	2450	2635	2816	2997	3181	3366	3553	3742	4166	4633	1.042	0.956
	MAX RANGE													
KTAS	347	365	369	369	374	387	400	412	424	430	440	459	1.039	0.959
FUEL FLOW	2446	2659	2769	2863	3014	3236	3461	3686	3912	4083	4460	4977	1.042	0.956

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	−−−−	−−−−	−−−−	5234	5331	5427	5527	5623	5727	5845	6097	6340	1.048	0.934
VMIN	−−−	−−−	−−−	182	194	206	218	230	243	255	280	304	1.038	0.965
180	2979	3605	4358										1.149	0.875
210	2449	2824	3246	3738	4338	5156							1.121	0.904
240	2208	2471	2770	3105	3505	3957	4478	5086					1.104	0.905
270	2185	2365	2568	2815	3086	3404	3748	4166	4655	5180			1.089	0.916
300	2295	2431	2585	2758	2950	3157	3423	3710	4021	4403	5309		1.071	0.936
330	2487	2588	2700	2839	2991	3156	3340	3542	3762	4035	4678	5482	1.050	0.956
360	2728	2808	2901	3009	3128	3265	3417	3579	3753	3954	4408	5005	1.041	0.978
390	3054	3128	3211	3302	3403	3512	3629	3758	3906	4072	4466	4910	1.023	0.998
420	3467	3530	3600	3677	3762	3854	3954	4062	4177	4323	4670	5063	1.012	1.008
450	3957	4005	4064	4130	4203	4283	4369	4478	4600	4730	5012	5337	0.999	1.026
480	4549	4592	4643	4705	4780	4862	4950	5045	5146	5255	5495	5762	0.978	1.032
510	5292	5329	5370	5417	5468	5531	5604	5681	5765	5854	6047	6291	0.974	1.038
540	6155	6179	6206	6238	6274	6313	6357	6426	6503	6590	6779	6986	0.966	1.205
570	8716	8743	8773	8809	8853	8904	8959	9019	9085	9173	9365	9578	0.785	1.293
600														
630														
660														
MIL	9861	9857	9853	9848	9843	9837	9830	9822	9815	9805	9782	9757	0.936	0.962
VMAX	578	578	578	577	577	577	576	576	575	574	573	571	1.026	0.960
	MAX ENDURANCE													
KTAS	257	270	282	292	302	316	325	337	346	358	368	377	1.039	0.959
FUEL FLOW	2175	2365	2559	2754	2950	3144	3339	3540	3741	3953	4399	4888	1.042	0.956
	MAX RANGE													
KTAS	335	355	364	368	369	373	385	397	408	416	436	455	1.039	0.959
FUEL FLOW	2521	2767	2929	3074	3188	3350	3582	3821	4056	4277	4822	5390	1.042	0.956

Figure B4-3. (Sheet 28)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	−−−−	5241	5339	5438	5538	5638	5744	5867	5999	6251	6493	1.048	0.934
VMIN	−−−	−−−	183	195	207	220	232	245	257	270	295	320	1.038	0.965
180	3660	4418											1.154	0.870
210	2884	3310	3811	4415	5260								1.124	0.896
240	2543	2844	3184	3587	4051	4575	5209						1.106	0.904
270	2460	2662	2910	3186	3506	3852	4287	4779	5324				1.089	0.915
300	2558	2710	2881	3072	3279	3551	3840	4157	4560	4982	6064		1.075	0.925
330	2744	2860	2999	3151	3314	3500	3704	3929	4202	4517	5266	6150	1.052	0.955
360	3008	3106	3214	3331	3467	3618	3780	3963	4172	4392	4909	5599	1.041	0.979
390	3384	3465	3556	3655	3763	3879	4009	4177	4357	4547	4962	5456	1.026	0.999
420	3841	3910	3986	4069	4160	4276	4405	4542	4688	4852	5223	5638	1.008	1.013
450	4383	4451	4531	4618	4714	4816	4928	5049	5178	5315	5611	5967	0.993	1.026
480	5115	5168	5229	5304	5386	5474	5568	5669	5777	5898	6160	6449	0.980	1.028
510	5936	5975	6020	6070	6134	6212	6296	6386	6482	6583	6809	7076	0.974	1.047
540	6974	7000	7031	7067	7107	7152	7228	7311	7398	7491	7690	7908	0.957	1.231
570														
600														
630														
660														
MIL	9692	9689	9686	9682	9677	9672	9667	9660	9651	9642	9621	9598	0.945	0.956
VMAX	567	567	566	566	566	566	565	565	564	564	562	561	1.028	0.959
MAX ENDURANCE														
KTAS	263	274	285	295	306	317	328	336	343	351	369	379	1.039	0.959
FUEL FLOW	2457	2661	2865	3070	3276	3490	3704	3926	4153	4386	4876	5436	1.042	0.956
MAX RANGE														
KTAS	338	350	361	369	369	380	391	399	407	416	432	453	1.039	0.959
FUEL FLOW	2809	3016	3225	3404	3525	3771	4020	4271	4532	4799	5366	6001	1.042	0.956

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	−−−−	−−−−	5247	5347	5449	5550	5654	5763	5895	6028	6290	6533	1.048	0.934
VMIN	−−−	−−−	184	196	209	221	234	247	260	273	299	324	1.038	0.965
180	3716	4479											1.153	0.871
210	2946	3375	3882	4492	5362								1.122	0.897
240	2616	2918	3263	3669	4145	4672	5332						1.106	0.906
270	2556	2755	3004	3287	3609	3960	4408	4904	5474				1.086	0.918
300	2684	2834	3005	3194	3407	3680	3970	4312	4716	5140	6249		1.072	0.929
330	2907	3022	3160	3310	3475	3663	3872	4095	4374	4712	5465	6376	1.048	0.958
360	3214	3311	3418	3534	3669	3820	3995	4183	4390	4610	5150	5843	1.037	0.983
390	3640	3720	3809	3908	4018	4150	4295	4463	4642	4830	5261	5752	1.018	1.006
420	4153	4229	4318	4417	4525	4644	4772	4909	5054	5216	5590	6004	1.000	1.018
450	4838	4907	4986	5072	5166	5268	5378	5499	5627	5762	6057	6410	0.987	1.028
480	5643	5694	5754	5830	5914	6005	6102	6206	6317	6438	6699	6988	0.976	1.034
510	6581	6621	6668	6719	6785	6863	6946	7036	7131	7232	7457	7725	0.967	1.054
540	7802	7823	7851	7883	7919	7959	8035	8118	8206	8299	8512	8764	0.947	1.063
570														
600														
630														
660														
MIL	9561	9560	9559	9556	9554	9551	9547	9540	9532	9524	9505	9482	0.950	0.952
VMAX	558	558	558	558	558	557	557	557	556	556	554	553	1.028	0.959
MAX ENDURANCE														
KTAS	257	269	280	290	300	310	319	329	338	346	363	379	1.039	0.959
FUEL FLOW	2542	2755	2969	3183	3407	3632	3860	4094	4333	4588	5130	5710	1.042	0.956
MAX RANGE														
KTAS	327	339	350	360	369	370	378	386	394	402	420	439	1.039	0.959
FUEL FLOW	2883	3097	3317	3538	3740	3893	4148	4412	4688	4965	5590	6241	1.042	0.956

Figure B4-3. (Sheet 29)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL		––––	5255	5356	5459	5561	5671	5784	5923	6058	6330	6589	1.048	0.934
VMIN		–––	185	197	210	223	236	249	263	276	303	331	1.038	0.965
180		4553											1.176	0.862
210		3439	3954	4569									1.121	0.898
240		2993	3343	3753	4239	4769	5454						1.107	0.901
270		2849	3098	3388	3711	4079	4529	5028	5623				1.092	0.918
300		2959	3128	3320	3535	3808	4099	4467	4873	5298			1.069	0.934
330		3183	3320	3472	3639	3831	4040	4261	4562	4908	5663		1.043	0.964
360		3517	3623	3738	3876	4040	4216	4403	4611	4844	5391	6088	1.034	0.986
390		3975	4072	4185	4307	4439	4583	4750	4927	5124	5563	6048	1.013	1.007
420		4603	4691	4788	4895	5013	5140	5276	5423	5586	5958	6369	0.995	1.020
450		5364	5441	5526	5619	5719	5828	5948	6075	6210	6503	6853	0.983	1.028
480		6235	6296	6372	6456	6546	6643	6747	6857	6978	7239	7528	0.972	1.035
510		7278	7322	7372	7436	7513	7596	7685	7780	7881	8129	8442	0.962	1.064
540		8682	8709	8741	8778	8820	8907	9003	9105	9213			0.938	1.078
570														
600														
630														
660														
MIL		9408	9405	9401	9395	9387	9370	9342	9310	9274	9151	8997	0.951	0.948
VMAX		549	548	548	548	547	546	545	543	541	534	525	1.011	0.958
MAX ENDURANCE														
KTAS		268	279	290	300	310	319	328	337	346	363	379	1.039	0.959
FUEL FLOW		2847	3070	3299	3534	3771	4011	4257	4523	4803	5377	5982	1.042	0.956
MAX RANGE														
KTAS		330	343	356	368	369	369	374	382	390	411	430	1.039	0.959
FUEL FLOW		3179	3433	3691	3959	4123	4294	4540	4822	5120	5818	6511	1.042	0.956

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **––– VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL			5263	5364	5470	5575	5687	5808	5952	6089	6373	6660	1.048	0.935
VMIN			186	198	211	224	238	251	266	279	307	338	1.038	0.967
180														
210			4026	4646									1.127	0.889
240			3422	3844	4333	4865	5576						1.105	0.900
270			3197	3489	3813	4198	4650	5152	5773				1.096	0.913
300			3252	3449	3662	3936	4249	4623	5030	5456			1.071	0.932
330			3484	3637	3807	4001	4208	4440	4756	5103	5869		1.045	0.966
360			3829	3953	4100	4263	4438	4626	4846	5089	5632	6352	1.031	0.987
390			4365	4477	4598	4728	4870	5040	5230	5430	5864	6344	1.008	1.009
420			5064	5159	5265	5384	5513	5650	5795	5957	6327	6734	0.990	1.020
450			5895	5979	6071	6170	6278	6397	6523	6657	6949	7321	0.980	1.028
480			6838	6914	6997	7087	7184	7287	7397	7517	7819	8155	0.968	1.042
510			7982	8036	8109	8198	8294	8396	8505	8621			0.955	1.050
540														
570														
600														
630														
660														
MIL			9098	9083	9065	9035	8996	8954	8899	8835	8669	8415	0.975	0.946
VMAX			531	530	529	527	525	522	519	515	505	488	1.012	0.957
MAX ENDURANCE														
KTAS			279	289	299	309	319	328	337	346	363	378	1.039	0.959
FUEL FLOW			3172	3416	3661	3908	4161	4435	4725	5021	5622	6254	1.042	0.956
MAX RANGE														
KTAS			341	349	358	366	368	369	372	382	402	421	1.039	0.959
FUEL FLOW			3593	3819	4071	4333	4530	4711	4955	5313	6031	6754	1.042	0.956

Figure B4-3. (Sheet 30)

Subsonic Cruise — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−25°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL			5271	5374	5481	5590	5703	5837	5982	6127	6414	6746	1.047	0.934
VMIN			187	200	213	226	240	254	268	283	312	348	1.038	0.967
180														
210			4097	4724									1.127	0.890
240			3502	3935	4427	4966							1.102	0.904
270			3296	3590	3916	4318	4771	5287	5922				1.093	0.916
300			3383	3579	3790	4065	4403	4778	5187	5631			1.069	0.932
330			3650	3807	3979	4170	4382	4631	4950	5299	6088		1.040	0.970
360			4054	4179	4324	4486	4663	4865	5093	5333	5873	6626	1.026	0.991
390			4658	4768	4888	5020	5172	5349	5537	5735	6166	6661	1.002	1.011
420			5440	5536	5642	5760	5888	6024	6168	6328	6695	7142	0.987	1.021
450			6350	6433	6523	6621	6727	6846	6971	7105	7434	7833	0.976	1.034
480			7380	7456	7541	7645	7757	7877	8005	8144			0.960	1.056
510														
540														
570														
600														
630														
660														
MIL			8760	8737	8702	8660	8607	8543	8469	8394	8209	7935	0.992	0.942
VMAX			510	509	507	504	501	497	492	486	473	454	1.016	0.956
MAX ENDURANCE														
KTAS			279	289	299	309	319	328	337	346	362	378	1.039	0.959
FUEL FLOW			3278	3532	3788	4046	4321	4622	4929	5239	5868	6546	1.042	0.956
MAX RANGE														
KTAS			333	340	348	356	368	369	369	377	394	407	1.039	0.959
FUEL FLOW			3684	3913	4174	4441	4765	4968	5182	5523	6229	6911	1.042	0.956

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure B4-3. (Sheet 31)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 0	**MIL**	−−−−	4196	4287	4376	4465	4555	4666	4776					1.054	0.943
	VMIN	−−−	183	197	211	225	240	254	268					1.041	0.961
	180	3419												1.170	0.847
	210	2520	2997	3598										1.131	0.878
	240	2105	2429	2821	3282	3812								1.116	0.888
	270	1900	2140	2408	2724	3077	3529	4037	4679					1.116	0.898
	300	1848	2018	2214	2438	2700	2994	3321	3729					1.090	0.912
	330	1880	2014	2165	2336	2531	2739	2990	3275					1.065	0.925
	360	1973	2077	2191	2329	2485	2657	2849	3053					1.051	0.946
	390	2112	2197	2291	2393	2510	2656	2814	2983					1.039	0.971
	420	2280	2350	2427	2512	2612	2726	2849	2990					1.035	0.991
	450	2497	2555	2620	2694	2785	2884	2991	3106					1.024	1.003
	480	2751	2799	2864	2938	3019	3107	3201	3304					1.011	1.019
	510	3099	3143	3192	3254	3322	3395	3474	3559					0.998	1.013
	540	3452	3486	3524	3565	3617	3679	3745	3815					1.002	1.188
	570	4614	4654	4702	4756	4815	4877	4958	5043					0.854	1.408
	600	7389	7438	7492	7557	7634	7717	7809	7916					0.732	1.448
	630														
	660														
	MIL	9003	8980	8956	8929	8898	8860	8819	8775					0.929	0.955
	VMAX	627	626	624	623	621	619	616	614					1.011	0.958
		MAX ENDURANCE													
	KTAS	297	314	330	345	361	375	388	401					1.041	0.957
	FUEL FLOW	1848	2005	2165	2323	2484	2650	2814	2979					1.044	0.954
		MAX RANGE													
	KTAS	398	421	421	433	443	451	458	469					1.041	0.957
	FUEL FLOW	2156	2357	2434	2583	2740	2893	3039	3227					1.044	0.954

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

DRAG INDEX	GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 50	**MIL**	−−−−	4202	4294	4385	4474	4569	4682	4797	4909	5015	5131		1.054	0.940
	VMIN	−−−	184	198	213	227	242	256	270	284	298	312		1.040	0.962
	180	3469												1.175	0.849
	210	2573	3058	3662										1.129	0.880
	240	2167	2496	2891	3361	3893								1.116	0.891
	270	1978	2219	2488	2810	3164	3632	4142						1.104	0.903
	300	1947	2121	2316	2540	2807	3103	3450	3860	4354	4938			1.097	0.913
	330	2007	2143	2295	2468	2661	2871	3128	3416	3747	4139	4550		1.079	0.929
	360	2134	2236	2349	2494	2653	2824	3014	3221	3458	3740	4061		1.053	0.944
	390	2305	2389	2485	2597	2719	2865	3022	3189	3382	3606	3843		1.042	0.966
	420	2507	2579	2666	2762	2867	2981	3102	3242	3396	3588	3794		1.033	0.992
	450	2782	2850	2925	3007	3098	3196	3303	3417	3538	3688	3868		1.020	1.009
	480	3129	3187	3254	3328	3409	3497	3591	3694	3808	3934	4069		1.005	1.019
	510	3560	3603	3650	3712	3779	3851	3930	4017	4114	4226	4344		0.998	1.016
	540	4025	4054	4088	4124	4173	4239	4313	4392	4476	4565	4659		0.994	1.244
	570	5699	5745	5800	5863	5930	6003	6096	6195	6301	6413	6531		0.813	1.329
	600														
	630														
	660														
	MIL	8417	8409	8401	8390	8378	8365	8351	8334	8316	8297	8276		0.971	0.946
	VMAX	593	592	592	591	591	590	589	588	587	586	585		1.033	0.957
		MAX ENDURANCE													
	KTAS	293	308	322	335	347	360	371	384	398	408	418		1.041	0.957
	FUEL FLOW	1943	2116	2290	2466	2644	2824	3005	3186	3376	3583	3794		1.044	0.954
		MAX RANGE													
	KTAS	379	401	411	421	421	432	445	451	451	461	477		1.041	0.957
	FUEL FLOW	2240	2451	2607	2771	2876	3060	3264	3427	3548	3768	4042		1.044	0.954

Figure B4-3. (Sheet 32)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST | **CONDITIONS:** | **ENGINE F110-GE-129**

• **STANDARD DAY TEMPERATURE (−35°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	−−−−	4209	4300	4393	4484	4585	4700	4818	4931	5044	5280	5525	1.051	0.937
VMIN	−−−	185	200	214	228	244	258	273	287	301	329	358	1.040	0.962
180	3518												1.179	0.850
210	2627	3118	3725										1.126	0.881
240	2229	2562	2960	3440	3974								1.116	0.894
270	2057	2298	2571	2896	3262	3734	4255						1.100	0.908
300	2052	2224	2417	2641	2915	3211	3580	3991	4496				1.088	0.919
330	2138	2273	2428	2601	2793	3004	3268	3562	3910	4303	5249		1.077	0.935
360	2295	2397	2517	2663	2821	2991	3180	3402	3638	3927	4614	5472	1.054	0.947
390	2502	2593	2696	2807	2929	3073	3229	3411	3617	3839	4333	4965	1.039	0.969
420	2760	2838	2924	3019	3123	3236	3356	3511	3694	3888	4312	4789	1.032	0.998
450	3098	3165	3239	3321	3410	3509	3621	3755	3899	4055	4423	4833	1.015	1.017
480	3520	3578	3645	3719	3802	3897	4000	4111	4231	4358	4634	4995	0.998	1.019
510	4026	4070	4119	4185	4257	4334	4418	4508	4605	4717	4969	5275	0.993	1.026
540	4652	4680	4712	4749	4801	4870	4943	5021	5104	5191	5431	5738	0.978	1.304
570	6984	7027	7079	7139	7203	7273	7370	7475	7588	7707	7965		0.774	1.404
600														
630														
660														
MIL	8176	8170	8162	8153	8144	8133	8121	8107	8092	8076	8037	7980	0.986	0.944
VMAX	579	578	578	578	577	576	576	575	574	573	571	567	1.035	0.957
MAX ENDURANCE														
KTAS	288	301	312	324	336	349	361	373	382	390	410	422	1.041	0.957
FUEL FLOW	2040	2224	2410	2599	2790	2985	3179	3394	3614	3839	4306	4787	1.044	0.954
MAX RANGE														
KTAS	366	376	392	407	421	421	425	432	444	455	482	497	1.041	0.957
FUEL FLOW	2329	2497	2709	2922	3133	3245	3391	3592	3848	4096	4657	5127	1.044	0.954

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−− VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
MIL	−−−−	4215	4307	4402	4496	4601	4721	4840	4956	5077	5319	5591	1.051	0.936
VMIN	−−−	186	201	215	230	246	261	276	290	305	334	365	1.040	0.963
180	3568												1.184	0.851
210	2681	3178	3789										1.124	0.882
240	2291	2628	3030	3519	4070								1.116	0.897
270	2135	2378	2656	2981	3362	3837	4380						1.097	0.912
300	2156	2327	2519	2748	3023	3320	3710	4123	4649				1.084	0.924
330	2269	2408	2562	2733	2927	3142	3407	3718	4072	4467			1.061	0.943
360	2461	2569	2688	2832	2989	3158	3363	3583	3818	4127	4817		1.045	0.958
390	2716	2806	2907	3018	3139	3283	3459	3649	3853	4072	4574	5206	1.034	0.975
420	3020	3097	3181	3275	3379	3505	3649	3814	3996	4189	4610	5079	1.025	1.004
450	3414	3480	3553	3644	3749	3866	3991	4124	4267	4423	4792	5200	1.009	1.017
480	3924	3985	4057	4138	4225	4320	4423	4535	4655	4791	5088	5449	0.997	1.020
510	4525	4567	4614	4679	4750	4827	4910	5010	5117	5246	5526	5834	0.986	1.042
540	5314	5341	5372	5409	5466	5544	5628	5717	5812	5913	6159	6474	0.959	1.052
570														
600														
630														
660														
MIL	7974	7967	7959	7950	7940	7929	7914	7898	7882	7864	7826	7772	0.993	0.942
VMAX	567	566	566	565	565	564	563	562	561	560	558	554	1.035	0.956
MAX ENDURANCE														
KTAS	280	292	301	315	327	340	350	359	365	378	397	414	1.041	0.957
FUEL FLOW	2130	2324	2519	2720	2926	3137	3357	3583	3816	4061	4570	5077	1.044	0.954
MAX RANGE														
KTAS	352	362	376	391	405	410	419	427	439	450	472	493	1.041	0.957
FUEL FLOW	2407	2581	2801	3028	3252	3415	3638	3876	4151	4427	4996	5589	1.044	0.954

Figure B4-3. (Sheet 33)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	MIL	4222	4315	4411	4509	4617	4742	4863	4985	5110	5235	5520	5838	1.050	0.934
	VMIN	187	202	217	232	248	263	279	294	309	324	357	394	1.040	0.962
	180														
	210	3238	3863											1.141	0.875
	240	2694	3106	3598	4170									1.115	0.892
	270	2457	2740	3067	3461	3939	4505							1.111	0.911
	300	2430	2621	2854	3130	3447	3839	4253	4802					1.090	0.927
	330	2543	2696	2868	3063	3282	3550	3879	4235	4631	5097			1.071	0.941
	360	2741	2859	3002	3157	3341	3546	3765	4013	4326	4665	5468		1.045	0.959
	390	3019	3119	3229	3358	3521	3697	3886	4089	4318	4560	5115		1.029	0.982
	420	3355	3443	3555	3678	3811	3954	4118	4298	4491	4694	5133	5644	1.026	1.002
	450	3835	3921	4016	4120	4236	4360	4494	4637	4793	4971	5358	5791	1.009	1.013
	480	4408	4481	4561	4649	4751	4861	4981	5110	5246	5391	5715	6103	0.995	1.021
	510	5082	5132	5204	5284	5370	5464	5563	5670	5800	5937	6234	6576	0.979	1.049
	540	6091	6116	6147	6200	6277	6359	6448	6542	6641	6747	7075	7457	0.945	1.066
	570														
	600														
	630														
	660														
	MIL	7792	7786	7780	7772	7762	7750	7738	7724	7709	7693	7648	7591	1.000	0.940
	VMAX	555	555	555	554	553	553	552	551	550	549	546	542	1.036	0.956
	MAX ENDURANCE														
	KTAS	285	298	307	318	327	338	349	361	370	379	397	417	1.041	0.957
	FUEL FLOW	2417	2620	2836	3055	3282	3514	3756	4012	4279	4547	5080	5644	1.044	0.954
	MAX RANGE														
	KTAS	354	364	378	389	401	414	421	428	440	451	464	484	1.041	0.957
	FUEL FLOW	2693	2888	3122	3349	3610	3888	4130	4376	4681	4985	5512	6147	1.044	0.954

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250	MIL	4228	4323	4420	4521	4635	4764	4888	5016	5146	5287	5600	5984	1.049	0.933
	VMIN	188	203	218	234	250	266	282	298	313	330	367	411	1.040	0.963
	180														
	210	3298	3945											1.145	0.877
	240	2760	3182	3677	4269									1.113	0.895
	270	2537	2825	3153	3560	4042	4630							1.108	0.911
	300	2533	2728	2960	3238	3575	3969	4384	4955					1.089	0.929
	330	2678	2831	3003	3204	3422	3704	4041	4397	4807				1.060	0.952
	360	2913	3029	3171	3342	3526	3729	3956	4212	4526	4866			1.036	0.969
	390	3232	3338	3463	3599	3761	3936	4127	4339	4565	4803	5375		1.024	0.989
	420	3654	3752	3863	3985	4117	4260	4422	4602	4793	4995	5428	5980	1.019	1.005
	450	4209	4294	4388	4492	4608	4733	4866	5009	5163	5341	5725	6218	1.002	1.017
	480	4845	4924	5010	5104	5206	5316	5436	5565	5701	5846	6184	6630	0.987	1.025
	510	5642	5690	5761	5840	5925	6018	6117	6223	6353	6499	6841		0.969	1.062
	540	6841	6863	6891	6947	7033	7126	7226	7331	7443				0.926	1.087
	570														
	600														
	630														
	660														
	MIL	7660	7657	7653	7647	7638	7627	7615	7603	7589	7554	7356	6983	1.005	0.940
	VMAX	547	547	546	546	545	545	544	543	542	540	526	500	1.037	0.956
	MAX ENDURANCE														
	KTAS	281	292	304	316	327	338	348	358	368	377	397	414	1.041	0.957
	FUEL FLOW	2504	2722	2946	3178	3417	3670	3937	4211	4490	4770	5337	5966	1.044	0.954
	MAX RANGE														
	KTAS	344	359	371	381	391	401	411	421	426	437	451	465	1.041	0.957
	FUEL FLOW	2775	3023	3261	3512	3774	4038	4321	4617	4858	5177	5743	6400	1.044	0.954

Figure B4-3. (Sheet 34)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 300	MIL		4332	4429	4534	4657	4787	4918	5049	5189	5351	5719		1.049	0.933
	VMIN		204	220	236	253	269	286	302	318	337	380		1.040	0.964
	180														
	210		4026											1.126	0.866
	240		3258	3755	4368									1.114	0.895
	270		2909	3248	3659	4144	4754							1.111	0.910
	300		2835	3066	3349	3703	4098	4529						1.085	0.929
	330		2968	3145	3346	3566	3864	4202	4560	4996				1.069	0.950
	360		3203	3358	3528	3710	3918	4158	4412	4725	5076			1.036	0.971
	390		3582	3706	3841	4001	4181	4378	4588	4811	5047	5654		1.020	0.989
	420		4061	4171	4293	4424	4566	4727	4906	5096	5296	5768		1.012	1.009
	450		4669	4763	4866	4981	5105	5238	5380	5534	5710	6152		0.995	1.021
	480		5379	5465	5559	5661	5771	5891	6020	6169	6336	6711		0.980	1.033
	510		6247	6317	6395	6485	6590	6703	6823	6972				0.960	1.042
	540														
	570														
	600														
	630														
	660														
	MIL		7514	7506	7486	7456	7421	7363	7300	7225	7116	6758		1.005	0.934
	VMAX		537	537	535	533	531	527	522	517	509	482		1.025	0.952
	MAX ENDURANCE														
	KTAS		292	304	316	327	337	348	358	368	377	396		1.041	0.957
	FUEL FLOW		2822	3056	3301	3559	3836	4120	4407	4699	4992	5626		1.044	0.954
	MAX RANGE														
	KTAS		355	361	370	380	388	401	414	421	425	442		1.041	0.957
	FUEL FLOW		3159	3370	3618	3887	4164	4496	4828	5111	5351	6033		1.044	0.954

*TEMPERATURE DEVIATION FROM STANDARD DAY.

	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 350	MIL			4441	4547	4679	4811	4948	5085	5250	5427			1.049	0.933
	VMIN			222	238	255	272	289	306	326	346			1.040	0.964
	180														
	210														
	240			3834	4468									1.140	0.890
	270			3346	3758	4254								1.108	0.914
	300			3172	3476	3832	4228	4679						1.086	0.928
	330			3288	3487	3721	4024	4364	4727	5184				1.068	0.943
	360			3546	3714	3900	4122	4360	4612	4925	5308			1.033	0.970
	390			3949	4084	4251	4434	4630	4838	5058	5300			1.014	0.992
	420			4481	4601	4732	4873	5032	5210	5398	5621			1.006	1.012
	450			5138	5240	5354	5478	5610	5752	5932	6137			0.990	1.029
	480			5920	6014	6122	6249	6389	6538	6697				0.970	1.048
	510			6934	7023									0.946	1.061
	540														
	570														
	600														
	630														
	660														
	MIL			7216	7175	7126	7064	6989	6892	6757	6623			1.022	0.933
	VMAX			517	514	510	506	500	493	482	471			1.029	0.951
	MAX ENDURANCE														
	KTAS			304	315	327	337	348	358	367	377			1.041	0.957
	FUEL FLOW			3166	3423	3710	4004	4302	4603	4907	5225			1.044	0.954
	MAX RANGE														
	KTAS			356	361	367	380	393	404	416	421			1.041	0.957
	FUEL FLOW			3501	3727	3975	4317	4659	5003	5348	5637			1.044	0.954

Figure B4-3. (Sheet 35)

Subsonic Cruise — 25,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL			4453	4560	4701	4840	4981	5137	5322	5541			1.048	0.932
VMIN			223	240	258	276	294	312	334	360			1.040	0.964
180														
210														
240			3912										1.120	0.900
270			3444	3857	4375								1.106	0.917
300			3278	3602	3960	4357	4830						1.083	0.932
330			3431	3639	3882	4184	4525	4911					1.061	0.957
360			3733	3905	4106	4326	4561	4812	5142				1.026	0.977
390			4199	4340	4506	4687	4881	5087	5316	5584			1.010	0.994
420			4790	4910	5040	5180	5338	5523	5742	5974			1.001	1.016
450			5513	5614	5727	5868	6023	6188	6366				0.980	1.042
480			6422	6531	6650								0.958	1.055
510														
540														
570														
600														
630														
660														
MIL			6905	6849	6780	6704	6618	6515	6387	6182			1.040	0.932
VMAX			494	489	484	478	470	462	451	431			1.035	0.950
MAX ENDURANCE														
KTAS			304	315	326	337	347	357	367	376			1.041	0.957
FUEL FLOW			3276	3562	3865	4172	4483	4798	5123	5481			1.044	0.954
MAX RANGE														
KTAS			346	356	361	373	385	396	400	409			1.041	0.957
FUEL FLOW			3583	3865	4119	4460	4814	5168	5437	5808			1.044	0.954

*TEMPERATURE DEVIATION FROM STANDARD DAY.

Figure B4-3. (Sheet 36)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	3417	3501	3586	3695	3804	3909	4013	4120					1.056	0.949
VMIN	200	217	235	252	269	286	302	318					1.041	0.958
180														
210	2967												1.189	0.867
240	2331	2801	3395										1.136	0.873
270	1989	2306	2690	3162	3783								1.135	0.882
300	1829	2057	2327	2636	3022	3492							1.106	0.899
330	1771	1946	2151	2385	2663	2975	3358	3765					1.095	0.901
360	1785	1915	2086	2277	2487	2720	2999	3316					1.073	0.931
390	1881	1982	2108	2264	2431	2614	2836	3077					1.064	0.953
420	2010	2096	2203	2320	2453	2606	2771	2976					1.053	0.977
450	2174	2256	2349	2451	2563	2684	2819	2983					1.027	0.992
480	2394	2466	2547	2636	2735	2843	2959	3085					1.006	1.005
510	2654	2713	2780	2853	2933	3019	3121	3232					0.998	1.034
540	3140	3183	3240	3306	3376	3457	3550	3651					0.926	1.247
570	4499	4560	4638	4729	4835	4950	5073	5203					0.785	1.331
600	6579	6652	6740	6835									0.793	1.311
630														
660														
MIL	7138	7104	7061	7013	6959	6890	6810	6765					0.990	0.934
VMAX	612	610	607	604	600	596	591	588					1.029	0.952
	MAX ENDURANCE													
KTAS	340	354	363	379	395	411	418	434					1.043	0.955
FUEL FLOW	1768	1910	2086	2260	2430	2597	2770	2968					1.046	0.952
	MAX RANGE													
KTAS	416	429	442	451	465	479	527	530					1.043	0.955
FUEL FLOW	1990	2142	2304	2458	2645	2836	3210	3328					1.046	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	3422	3508	3598	3708	3821	3927	4038	4146	4250	4366	4487		1.056	0.947
VMIN	201	219	237	254	272	289	306	322	338	355	372		1.042	0.958
180														
210	3019												1.191	0.870
240	2388	2866	3481										1.133	0.876
270	2057	2377	2773	3248									1.131	0.899
300	1914	2143	2417	2736	3130	3609							1.106	0.904
330	1879	2060	2265	2499	2780	3108	3492	3918					1.089	0.906
360	1911	2064	2235	2423	2635	2869	3152	3480	3833	4265			1.077	0.926
390	2042	2157	2288	2441	2608	2807	3030	3267	3535	3847	4177		1.066	0.946
420	2215	2311	2418	2534	2666	2826	3018	3223	3447	3685	3936		1.056	0.972
450	2438	2521	2614	2716	2827	2952	3106	3282	3469	3670	3888		1.034	0.998
480	2720	2792	2873	2961	3060	3174	3297	3428	3572	3738	3931		1.007	1.003
510	3040	3099	3166	3240	3325	3418	3527	3648	3775	3910	4069		0.999	1.046
540	3704	3750	3813	3885	3964	4048	4138	4244	4392	4547	4710		0.907	1.317
570	5678	5746	5821	5912	6025	6146	6276	6414					0.748	1.420
600														
630														
660														
MIL	6639	6627	6614	6599	6581	6562	6541	6519	6496	6470	6440		1.017	0.935
VMAX	579	578	578	577	575	574	573	571	569	568	566		1.040	0.954
	MAX ENDURANCE													
KTAS	330	345	354	366	382	398	410	418	430	441	452		1.043	0.955
FUEL FLOW	1879	2051	2231	2420	2605	2803	3008	3222	3443	3664	3887		1.046	0.952
	MAX RANGE													
KTAS	393	412	423	439	442	448	476	488	501	519	519		1.043	0.955
FUEL FLOW	2057	2267	2433	2639	2772	2937	3269	3484	3710	3973	4127		1.046	0.952

Figure B4-3. (Sheet 37)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	3429	3515	3610	3724	3839	3949	4063	4173	4292	4417	4685	5028	1.056	0.944
VMIN	203	220	239	257	275	292	310	326	344	362	400	440	1.042	0.959
180														
210	3082												1.134	0.869
240	2447	2931	3567										1.132	0.880
270	2127	2448	2855	3334									1.127	0.899
300	2000	2231	2507	2841	3237	3736							1.107	0.910
330	1995	2175	2380	2615	2903	3241	3627	4078					1.086	0.913
360	2060	2214	2383	2571	2787	3019	3316	3645	4000				1.060	0.937
390	2223	2337	2467	2619	2802	3004	3224	3464	3730	4044			1.053	0.960
420	2431	2526	2632	2748	2898	3076	3267	3471	3691	3925	4463		1.047	0.979
450	2704	2787	2879	2990	3117	3253	3406	3582	3773	3975	4424	4986	1.036	0.997
480	3046	3121	3206	3299	3403	3517	3640	3775	3933	4115	4511	4974	1.010	1.007
510	3441	3504	3575	3653	3738	3830	3941	4078	4225	4381	4742	5169	0.996	1.065
540	4329	4380	4452	4536	4626	4724	4829	4946	5098	5259	5617	6064	0.880	1.122
570														
600														
630														
660														
MIL	6443	6433	6423	6410	6395	6379	6362	6339	6312	6277	6199	6109	1.026	0.934
VMAX	566	565	564	563	562	561	560	558	556	554	548	541	1.041	0.954
	MAX ENDURANCE													
KTAS	319	333	346	358	370	381	392	404	412	417	441	471	1.043	0.955
FUEL FLOW	1988	2175	2370	2571	2783	3000	3223	3453	3685	3925	4414	4966	1.046	0.952
	MAX RANGE													
KTAS	380	403	413	418	429	443	456	475	483	495	501	501	1.043	0.955
FUEL FLOW	2164	2409	2580	2731	2950	3194	3445	3738	3956	4221	4652	5075	1.046	0.952

*TEMPERATURE DEVIATION FROM STANDARD DAY.

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	3435	3523	3623	3741	3856	3973	4090	4209	4339	4477	4788	5418	1.056	0.943
VMIN	204	222	241	259	278	296	314	332	351	371	414	480	1.042	0.959
180														
210	3151												1.127	0.866
240	2510	2996											1.121	0.885
270	2197	2520	2938	3431									1.122	0.900
300	2086	2320	2597	2947	3345	3863							1.103	0.912
330	2112	2291	2496	2732	3032	3375	3764						1.077	0.928
360	2211	2363	2532	2725	2939	3174	3479	3810	4193				1.053	0.947
390	2404	2518	2647	2816	3001	3200	3422	3662	3925	4252			1.045	0.970
420	2647	2742	2861	2996	3150	3326	3516	3718	3935	4166	4743		1.038	0.987
450	2978	3072	3176	3292	3418	3554	3710	3888	4078	4279	4747		1.023	1.006
480	3389	3465	3549	3642	3747	3873	4008	4152	4310	4492	4891		1.001	1.017
510	3854	3917	3993	4082	4179	4284	4412	4552	4700	4858	5233	5740	0.983	1.082
540	5052	5099	5168	5248	5336	5431	5537	5665	5843	6030			0.854	1.147
570														
600														
630														
660														
MIL	6277	6268	6256	6242	6226	6208	6190	6170	6143	6112	6044	5757	1.034	0.933
VMAX	554	553	552	551	550	548	547	546	543	541	535	511	1.042	0.954
	MAX ENDURANCE													
KTAS	305	319	333	344	354	368	380	391	402	412	430	480	1.043	0.955
FUEL FLOW	2085	2287	2496	2713	2937	3169	3416	3661	3907	4151	4717	5418	1.046	0.952
	MAX RANGE													
KTAS	368	390	403	412	424	438	452	468	479	483	484	501	1.043	0.955
FUEL FLOW	2261	2519	2726	2933	3179	3449	3722	4032	4299	4519	4916	5596	1.046	0.952

Figure B4-3. (Sheet 38)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
		22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
DRAG INDEX = 200	MIL	3532	3635	3758	3877	3998	4117	4254	4397	4559	4733			1.056	0.943
	VMIN	224	243	262	281	300	318	338	360	382	406			1.042	0.959
	180														
	210														
	240	3061												1.137	0.886
	270	2597	3021	3535										1.119	0.895
	300	2408	2690	3054	3452									1.098	0.913
	330	2408	2613	2850	3165	3508	3915							1.082	0.924
	360	2513	2686	2879	3091	3337	3642	3974						1.049	0.956
	390	2705	2847	3016	3199	3401	3623	3859	4120	4486				1.043	0.974
	420	2991	3114	3249	3401	3576	3764	3965	4179	4413	4700			1.035	0.989
	450	3374	3478	3594	3723	3862	4017	4194	4383	4584	4834			1.020	1.008
	480	3816	3908	4010	4124	4250	4385	4529	4687	4869	5095			0.996	1.020
	510	4383	4465	4553	4650	4755	4884	5025	5177	5361	5558			0.972	1.107
	540	5858	5931	6019										0.822	1.186
	570														
	600														
	630														
	660														
	MIL	6133	6123	6111	6098	6084	6068	6049	6022	5994	5912			1.040	0.933
	VMAX	543	542	541	540	539	537	536	534	531	525			1.042	0.954
	MAX ENDURANCE														
	KTAS	308	320	334	350	360	371	382	393	407	413			1.043	0.955
	FUEL FLOW	2387	2609	2838	3080	3337	3595	3853	4111	4387	4686			1.046	0.952
	MAX RANGE														
	KTAS	379	394	409	414	428	442	447	460	472	483			1.043	0.955
	FUEL FLOW	2618	2877	3148	3349	3645	3938	4171	4477	4788	5128			1.046	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250	MIL	3541	3650	3776	3900	4025	4160	4308	4477	4669				1.056	0.944
	VMIN	226	245	265	284	304	324	347	371	398				1.042	0.959
	180														
	210														
	240	3126												1.139	0.889
	270	2678	3103	3638										1.116	0.899
	300	2497	2794	3160	3561									1.094	0.917
	330	2526	2731	2974	3297	3641	4073							1.078	0.928
	360	2668	2841	3032	3254	3500	3805	4163						1.045	0.961
	390	2907	3049	3216	3402	3605	3824	4057	4339					1.033	0.983
	420	3245	3368	3502	3652	3826	4013	4213	4434	4700				1.027	0.997
	450	3680	3785	3903	4031	4170	4324	4501	4705	4943				1.010	1.015
	480	4193	4285	4386	4500	4626	4762	4913	5099	5312				0.988	1.026
	510	4855	4936	5024	5121	5235	5386	5552	5729					0.960	1.038
	540														
	570														
	600														
	630														
	660														
	MIL	6034	6025	6014	6002	5989	5960	5878	5758	5594				1.044	0.933
	VMAX	535	534	533	532	531	529	522	511	496				1.043	0.954
	MAX ENDURANCE														
	KTAS	306	320	333	346	358	369	381	393	403				1.043	0.955
	FUEL FLOW	2481	2715	2964	3229	3497	3769	4040	4331	4640				1.046	0.952
	MAX RANGE														
	KTAS	373	385	397	411	415	428	442	442	452				1.043	0.955
	FUEL FLOW	2755	3009	3271	3564	3777	4090	4406	4617	4966				1.046	0.952

Figure B4-3. (Sheet 39)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL		3667	3794	3924	4055	4210	4380	4589					1.056	0.944
VMIN		248	268	288	308	332	357	386					1.041	0.961
180														
210														
240														
270		3186	3741										1.134	0.891
300		2899	3266	3685									1.092	0.916
330		2850	3105	3429	3778								1.074	0.933
360		2997	3192	3419	3663	3968	4359						1.053	0.962
390		3250	3421	3608	3809	4025	4269	4571					1.034	0.983
420		3621	3754	3903	4076	4262	4478	4725					1.023	1.000
450		4094	4212	4340	4478	4636	4846	5069					1.005	1.021
480		4662	4763	4878	5027	5187	5358						0.979	1.044
510		5445	5548	5660									0.939	1.064
540														
570														
600														
630														
660														
MIL		5884	5850	5790	5725	5627	5479	5225					1.047	0.926
VMAX		522	519	514	508	499	486	461					1.043	0.949
MAX ENDURANCE														
KTAS		320	333	345	357	369	381	392					1.043	0.955
FUEL FLOW		2826	3098	3376	3657	3941	4242	4567					1.046	0.952
MAX RANGE														
KTAS		373	386	401	413	416	424	437					1.043	0.955
FUEL FLOW		3099	3383	3705	3994	4222	4524	4904					1.046	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 350

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			3816	3950	4099	4270	4489						1.056	0.943
VMIN			271	292	315	341	372						1.041	0.962
180														
210														
240														
270														
300			3372	3810									1.108	0.914
330			3236	3561	3929								1.075	0.927
360			3360	3584	3826	4153							1.049	0.966
390			3628	3814	4013	4234	4505						1.030	0.987
420			4007	4155	4326	4538	4773						1.019	1.008
450			4520	4656	4820	5002							0.993	1.036
480			5188	5322									0.965	1.050
510														
540														
570														
600														
630														
660														
MIL			5570	5490	5373	5237	5005						1.052	0.926
VMAX			494	487	476	462	437						1.045	0.945
MAX ENDURANCE														
KTAS			333	345	357	369	380						1.043	0.955
FUEL FLOW			3231	3522	3817	4122	4461						1.046	0.952
MAX RANGE														
KTAS			377	392	407	412	413						1.043	0.955
FUEL FLOW			3504	3837	4169	4442	4682						1.046	0.952

Figure B4-3. (Sheet 40)

Subsonic Cruise — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			3840	3978	4152	4365							1.055	0.944
VMIN			275	297	323	355							1.041	0.962
180														
210														
240														
270														
300			3478	3935									1.104	0.914
330			3367	3694	4086								1.074	0.932
360			3527	3750	3990	4347							1.045	0.970
390			3835	4019	4224	4473							1.022	0.995
420			4259	4413	4617	4835							1.008	1.021
450			4872	5023									0.979	1.034
480														
510														
540														
570														
600														
630														
660														
MIL			5283	5192	5077	4860							1.055	0.924
VMAX			467	457	445	422							1.046	0.944
MAX ENDURANCE														
KTAS			332	345	357	368							1.043	0.955
FUEL FLOW			3364	3669	3976	4326							1.046	0.952
MAX RANGE														
KTAS			370	385	390	401							1.043	0.955
FUEL FLOW			3617	3962	4225	4586							1.046	0.952

*TEMPERATURE DEVIATION FROM STANDARD DAY.

Figure B4-3. (Sheet 41)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	MIL	2883	2989	3090	3195	3299	3399	3516	3635					1.055	0.951
	VMIN	240	261	282	302	321	340	360	379					1.044	0.954
	180														
	210														
	240														
	270	2255	2757											1.155	0.862
	300	1944	2273	2686										1.131	0.887
	330	1802	2039	2328	2684	3084								1.118	0.897
	360	1760	1948	2163	2422	2730	3075							1.093	0.912
	390	1769	1930	2107	2319	2556	2821	3127	3466					1.076	0.914
	420	1836	1958	2103	2268	2468	2693	2939	3203					1.074	0.947
	450	1958	2063	2178	2306	2467	2647	2841	3069					1.058	0.975
	480	2128	2215	2317	2428	2552	2693	2857	3033					1.033	0.982
	510	2308	2379	2457	2552	2663	2788	2923	3074					1.033	1.119
	540	2915	2994	3081	3175	3277	3396	3550	3713					0.859	1.367
	570	4511	4610	4725	4862	5012	5172							0.724	1.446
	600														
	630														
	660														
	MIL	5562	5510	5443	5362	5326	5296	5262	5224					1.040	0.930
	VMAX	593	589	584	577	574	572	569	565					1.044	0.952
	MAX ENDURANCE														
	KTAS	367	386	411	432	432	443	458	477					1.045	0.953
	FUEL FLOW	1759	1930	2101	2263	2447	2645	2838	3033					1.048	0.950
	MAX RANGE														
	KTAS	436	453	504	519	519	519	519	519					1.045	0.953
	FUEL FLOW	1893	2076	2427	2589	2694	2817	2948	3086					1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

	GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 50	MIL	2893	3001	3104	3215	3320	3432	3560	3688	3831	3993	4143		1.055	0.948
	VMIN	242	264	285	306	325	346	367	388	410	432	454		1.044	0.954
	180														
	210														
	240														
	270	2324	2844											1.155	0.866
	300	2020	2361	2774										1.124	0.890
	330	1895	2137	2433	2794	3218								1.113	0.903
	360	1880	2067	2288	2548	2865	3211							1.087	0.925
	390	1922	2082	2266	2481	2716	2980	3288	3665					1.067	0.928
	420	2021	2142	2290	2474	2673	2899	3142	3402	3735				1.066	0.952
	450	2182	2287	2405	2543	2710	2893	3098	3325	3569	3848			1.059	0.970
	480	2397	2485	2590	2707	2834	2975	3154	3350	3557	3785	4054		1.045	0.989
	510	2632	2709	2793	2896	3015	3143	3292	3470	3680	3900	4132		1.024	1.159
	540	3502	3595	3698	3809	3931	4081	4241	4411	4611	4842			0.832	1.249
	570														
	600														
	630														
	660														
	MIL	5215	5198	5178	5157	5135	5110	5080	5049	5017	4961	4877		1.054	0.932
	VMAX	565	563	562	560	558	556	553	551	548	543	535		1.044	0.952
	MAX ENDURANCE														
	KTAS	352	369	387	414	431	434	448	461	471	473	490		1.045	0.953
	FUEL FLOW	1876	2064	2265	2473	2670	2877	3097	3313	3542	3781	4044		1.048	0.950
	MAX RANGE														
	KTAS	432	432	439	473	490	507	508	519	519	519	519		1.045	0.953
	FUEL FLOW	2073	2184	2345	2663	2891	3125	3279	3517	3727	3955	4196		1.048	0.950

Figure B4-3. (Sheet 42)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	**MIL**	2903	3015	3122	3235	3348	3474	3611	3760	3937	4136			1.055	0.948
	VMIN	244	267	288	309	330	353	375	400	425	453			1.044	0.954
	180														
	210														
	240														
	270	2393	2928											1.154	0.871
	300	2095	2448	2865										1.119	0.894
	330	1988	2234	2542	2904									1.099	0.914
	360	2000	2192	2414	2681	2999	3372							1.084	0.936
	390	2076	2240	2432	2644	2877	3139	3463						1.054	0.944
	420	2205	2335	2498	2681	2882	3105	3345	3610					1.051	0.965
	450	2410	2523	2649	2787	2960	3151	3355	3581	3843				1.045	0.982
	480	2675	2765	2871	2989	3128	3285	3470	3666	3874	4139			1.031	1.005
	510	2981	3058	3143	3254	3393	3543	3703	3884	4101	4358			1.006	1.198
	540	4194	4284	4383	4499	4632	4808							0.788	1.301
	570														
	600														
	630														
	660														
	MIL	5065	5050	5034	5017	4992	4959	4921	4879	4836	4773			1.061	0.933
	VMAX	552	551	549	548	545	542	539	535	531	525			1.045	0.952
	MAX ENDURANCE														
	KTAS	342	353	367	381	396	420	432	448	461	461			1.045	0.953
	FUEL FLOW	1983	2191	2412	2640	2875	3105	3341	3581	3824	4117			1.048	0.950
	MAX RANGE														
	KTAS	430	432	435	452	473	483	490	490	490	490			1.045	0.953
	FUEL FLOW	2256	2392	2548	2796	3073	3302	3530	3724	3929	4173			1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX	GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
DRAG INDEX = 150	**MIL**	2915	3028	3142	3257	3383	3523	3682	3866	4146				1.055	0.949
	VMIN	247	269	292	313	337	361	387	415	455				1.043	0.954
	180														
	210														
	240														
	270	2462	3013											1.153	0.875
	300	2173	2535	2968										1.113	0.899
	330	2085	2333	2651	3015									1.093	0.918
	360	2123	2320	2540	2813	3133								1.065	0.947
	390	2235	2407	2598	2808	3039	3298	3659						1.048	0.953
	420	2408	2544	2705	2891	3092	3312	3549	3846					1.041	0.971
	450	2654	2768	2896	3043	3218	3409	3613	3859					1.031	0.995
	480	2955	3049	3168	3299	3441	3600	3785	3994	4243				1.016	1.019
	510	3351	3440	3538	3658	3800	3951	4113	4322	4584				0.991	1.026
	540														
	570														
	600														
	630														
	660														
	MIL	4932	4916	4899	4879	4856	4826	4792	4756	4685				1.064	0.935
	VMAX	540	538	537	535	533	530	527	523	516				1.045	0.952
	MAX ENDURANCE														
	KTAS	332	346	356	370	384	397	413	427	455				1.045	0.953
	FUEL FLOW	2085	2304	2539	2788	3037	3284	3545	3844	4146				1.048	0.950
	MAX RANGE														
	KTAS	395	428	432	451	465	473	473	480	490				1.045	0.953
	FUEL FLOW	2261	2588	2760	3049	3311	3538	3725	3993	4325				1.048	0.950

Figure B4-3. (Sheet 43)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	3043	3162	3286	3424	3590	3776							1.055	0.948
VMIN	272	296	319	344	372	403							1.044	0.955
180														
210														
240														
270														
300	2622	3073											1.136	0.901
330	2437	2760	3139										1.095	0.918
360	2448	2674	2946	3276									1.074	0.949
390	2575	2764	2973	3200	3473								1.043	0.960
420	2754	2917	3102	3302	3519	3788							1.033	0.977
450	3022	3155	3302	3477	3667	3899							1.023	1.001
480	3360	3480	3612	3755	3914	4134							1.004	1.031
510	3843	3941	4062	4214	4394	4587							0.979	1.041
540														
570														
600														
630														
660														
MIL	4813	4799	4782	4758	4730	4657							1.066	0.935
VMAX	529	527	526	523	520	513							1.045	0.952
MAX ENDURANCE														
KTAS	338	352	367	381	394	406							1.045	0.953
FUEL FLOW	2412	2666	2928	3188	3457	3761							1.048	0.950
MAX RANGE														
KTAS	413	430	441	461	462	473							1.045	0.953
FUEL FLOW	2709	2980	3233	3558	3746	4050							1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

KTAS \ GW–1000 LB (TOTAL FUEL FLOW LB/HR)	22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	3060	3183	3323	3481	3680								1.055	0.950
VMIN	276	300	326	354	387								1.043	0.954
180														
210														
240														
270														
300	2709												1.108	0.909
330	2545	2869	3271										1.092	0.923
360	2579	2808	3079	3439									1.069	0.954
390	2742	2931	3138	3362	3667								1.038	0.967
420	2967	3130	3313	3512	3758								1.023	0.986
450	3282	3415	3561	3739	3963								1.012	1.012
480	3672	3792	3926	4097	4286								0.996	1.051
510	4261	4376	4518										0.956	1.067
540														
570														
600														
630														
660														
MIL	4735	4722	4687	4594	4447								1.069	0.931
VMAX	521	520	516	506	490								1.047	0.948
MAX ENDURANCE														
KTAS	337	351	366	380	393								1.045	0.953
FUEL FLOW	2525	2792	3066	3341	3655								1.048	0.950
MAX RANGE														
KTAS	394	418	430	445	458								1.045	0.953
FUEL FLOW	2772	3117	3388	3695	4030								1.048	0.950

Figure B4-3. (Sheet 44)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST | **CONDITIONS:** | **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL		3210	3366	3564									1.055	0.949
VMIN		305	334	368									1.043	0.954
180														
210														
240														
270														
300														
330		2978											1.092	0.927
360		2942	3212										1.065	0.960
390		3099	3303	3554									1.033	0.972
420		3342	3524	3753									1.017	0.992
450		3674	3839	4045									1.001	1.024
480		4140	4298										0.982	1.037
510														
540														
570														
600														
630														
660														
MIL		4514	4408	4223									1.073	0.923
VMAX		498	486	465									1.049	0.941
MAX ENDURANCE														
KTAS		351	365	379									1.045	0.953
FUEL FLOW		2917	3203	3522									1.048	0.950
MAX RANGE														
KTAS		403	414	425									1.045	0.953
FUEL FLOW		3198	3475	3794									1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL			3426										1.055	0.949
VMIN			345										1.043	0.956
180														
210														
240														
270														
300														
330														
360			3369										1.072	0.949
390			3487										1.028	0.981
420			3769										1.007	1.003
450														
480														
510														
540														
570														
600														
630														
660														
MIL			4082										1.068	0.922
VMAX			445										1.050	0.940
MAX ENDURANCE														
KTAS			365										1.045	0.953
FUEL FLOW			3358										1.048	0.950
MAX RANGE														
KTAS			403										1.045	0.953
FUEL FLOW			3597										1.048	0.950

Figure B4-3. (Sheet 45)

Subsonic Cruise — 35,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−54°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 400	**MIL**			3528										1.055	0.946
	VMIN			362										1.042	0.958
	180														
	210														
	240														
	270														
	300														
	330														
	360														
	390			3688										1.021	0.979
	420														
	450														
	480														
	510														
	540														
	570														
	600														
	630														
	660														
	MIL			3721										1.066	0.926
	VMAX			394										1.053	0.935
	MAX ENDURANCE														
	KTAS			365										1.045	0.953
	FUEL FLOW			3524										1.048	0.950
	MAX RANGE														
	KTAS			393										1.045	0.953
	FUEL FLOW			3718										1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure B4-3. (Sheet 46)

Subsonic Cruise — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	42	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	2515	2617	2718	2841	2963	3104	3256	3423					1.057	0.950
VMIN	295	320	345	370	395	420	445	469					1.044	0.954
180														
210														
240														
270														
300	2427												1.152	0.856
330	2051	2442											1.136	0.886
360	1875	2176	2521										1.111	0.906
390	1816	2051	2317	2627									1.094	0.922
420	1812	2006	2230	2474	2750								1.074	0.916
450	1869	2023	2203	2406	2641	2894	3211						1.073	0.926
480	1969	2095	2237	2403	2600	2822	3069	3362					1.059	0.939
510	2032	2142	2273	2415	2593	2816	3053	3312					1.057	1.109
540	2576	2677	2819	2980	3154	3348	3595	3880					0.875	1.202
570	4005	4154											0.729	1.283
600														
630														
660														
MIL	4268	4225	4194	4158	4118	4077	4032	3975					1.068	0.932
VMAX	576	571	568	564	560	555	551	544					1.045	0.951
MAX ENDURANCE														
KTAS	407	428	445	468	483	488	500	502					1.045	0.953
FUEL FLOW	1805	2004	2203	2396	2600	2812	3050	3301					1.048	0.950
MAX RANGE														
KTAS	515	516	516	516	516	516	516	516					1.045	0.953
FUEL FLOW	2050	2159	2281	2414	2572	2804	3051	3315					1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 50

MIL	2530	2634	2750	2881	3023	3188	3387	3724					1.058	0.949
VMIN	299	324	351	378	406	434	464	508					1.044	0.954
180														
210														
240														
270														
300	2512												1.154	0.857
330	2138	2548											1.135	0.892
360	1975	2283	2642										1.105	0.912
390	1948	2179	2444	2768									1.087	0.933
420	1974	2170	2390	2631	2919								1.064	0.929
450	2059	2217	2401	2608	2842	3113							1.055	0.942
480	2197	2321	2466	2653	2856	3079	3360						1.042	0.957
510	2315	2437	2572	2739	2947	3177	3431	3733					1.034	1.151
540	3121	3244	3398	3567	3766								0.823	1.261
570														
600														
630														
660														
MIL	4096	4073	4047	4016	3985	3946	3885	3789					1.071	0.932
VMAX	557	555	552	549	545	539	529	517					1.045	0.951
MAX ENDURANCE														
KTAS	393	413	431	452	461	470	488	508					1.045	0.953
FUEL FLOW	1948	2168	2386	2608	2835	3075	3353	3724					1.048	0.950
MAX RANGE														
KTAS	512	516	516	516	516	516	516	516					1.045	0.953
FUEL FLOW	2326	2456	2585	2757	2962	3203	3467	3769					1.048	0.950

Figure B4-3. (Sheet 47)

Subsonic Cruise — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
DRAG INDEX = 100	**MIL**	2545	2656	2787	2933	3105	3345							1.057	0.950
	VMIN	303	330	359	389	421	458							1.044	0.953
	180														
	210														
	240														
	270														
	300														
	330	2226												1.114	0.905
	360	2077	2389	2773										1.099	0.918
	390	2080	2308	2571	2925									1.081	0.943
	420	2140	2334	2550	2788									1.050	0.947
	450	2253	2417	2604	2810	3052								1.039	0.957
	480	2421	2559	2718	2907	3111	3368							1.028	0.978
	510	2615	2759	2916	3086	3301	3563							1.006	0.996
	540	3714	3846											0.778	1.118
	570														
	600														
	630														
	660														
	MIL	3983	3966	3944	3918	3884	3822							1.066	0.925
	VMAX	545	542	538	534	528	521							1.046	0.951
		MAX ENDURANCE													
	KTAS	372	392	407	425	453	459							1.045	0.953
	FUEL FLOW	2070	2308	2546	2787	3052	3345							1.048	0.950
		MAX RANGE													
	KTAS	448	470	485	488	488	488							1.045	0.953
	FUEL FLOW	2243	2501	2745	2944	3145	3391							1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	+20°C	−20°C
DRAG INDEX = 150	**MIL**	2561	2684	2832	3003	3295								1.057	0.951
	VMIN	307	337	368	403	451								1.044	0.953
	180														
	210														
	240														
	270														
	300														
	330	2313												1.113	0.911
	360	2183	2496											1.086	0.936
	390	2211	2437	2698										1.061	0.956
	420	2305	2497	2711	2967									1.042	0.960
	450	2455	2620	2807	3016									1.026	0.970
	480	2670	2811	2971	3161	3404								1.016	0.997
	510	2954	3101	3260	3443	3693								0.985	1.020
	540														
	570														
	600														
	630														
	660														
	MIL	3911	3894	3863	3828	3785								1.062	0.921
	VMAX	532	530	526	522	516								1.046	0.951
		MAX ENDURANCE													
	KTAS	363	380	397	418	451								1.045	0.953
	FUEL FLOW	2181	2433	2682	2967	3295								1.048	0.950
		MAX RANGE													
	KTAS	441	464	470	473	487								1.045	0.953
	FUEL FLOW	2404	2694	2906	3116	3453								1.048	0.950

Figure B4-3. (Sheet 48)

Subsonic Cruise — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	38	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	2717	2894	3206										1.057	0.950
VMIN	344	381	437										1.043	0.954
180														
210														
240														
270														
300														
330														
360	2611												1.097	0.925
390	2566	2851											1.078	0.960
420	2660	2878											1.035	0.971
450	2823	3013	3260										1.024	0.975
480	3063	3235	3462										1.005	1.015
510	3453	3637											0.964	1.045
540														
570														
600														
630														
660														
MIL	3816	3788	3613										1.062	0.919
VMAX	520	517	494										1.046	0.949
MAX ENDURANCE														
KTAS	379	395	437										1.045	0.953
FUEL FLOW	2551	2833	3206										1.048	0.950
MAX RANGE														
KTAS	447	463	470										1.045	0.953
FUEL FLOW	2803	3094	3374										1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	38	40	44	48	+20°C	−20°C
MIL	2766	3012											1.056	0.950
VMIN	355	405											1.043	0.954
180														
210														
240														
270														
300														
330														
360	2739												1.079	0.922
390	2695												1.054	0.972
420	2823	3073											1.029	0.982
450	3033	3258											1.010	0.991
480	3342												0.986	1.007
510														
540														
570														
600														
630														
660														
MIL	3671	3444											1.060	0.909
VMAX	502	472											1.047	0.941
MAX ENDURANCE														
KTAS	378	405											1.045	0.953
FUEL FLOW	2675	3012											1.048	0.950
MAX RANGE														
KTAS	430	445											1.045	0.953
FUEL FLOW	2882	3223											1.048	0.950

Figure B4-3. (Sheet 49)

Subsonic Cruise — 45,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 0	MIL	2256	2380	2525	2685	2880								1.059	0.947
	VMIN	364	396	428	459	492								1.044	0.954
	180														
	210														
	240														
	270														
	300														
	330														
	360														
	390	2049												1.113	0.909
	420	1944	2218											1.097	0.926
	450	1901	2135	2394										1.079	0.933
	480	1911	2107	2335	2596									1.071	0.950
	510	1954	2124	2343	2581	2874								1.051	1.078
	540	2412	2583	2784	3048									0.886	1.160
	570														
	600														
	630														
	660														
	MIL	3376	3336	3294	3243	3119								1.057	0.928
	VMAX	565	559	554	547	529								1.045	0.952
	MAX ENDURANCE														
	KTAS	459	480	488	502	502								1.045	0.953
	FUEL FLOW	1898	2107	2325	2573	2865								1.048	0.950
	MAX RANGE														
	KTAS	516	516	516	516	516								1.045	0.953
	FUEL FLOW	1965	2124	2347	2589	2879								1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

		20	22	24	26	28	30	32	34	36	38	40	42	+20°C	−20°C
DRAG INDEX = 50	MIL	2286	2429	2603	2837									1.058	0.947
	VMIN	371	407	443	485									1.044	0.954
	180														
	210														
	240														
	270														
	300														
	330														
	360														
	390	2152												1.113	0.916
	420	2070	2355											1.093	0.937
	450	2063	2295	2579										1.067	0.945
	480	2108	2310	2540										1.050	0.970
	510	2201	2396	2623	2894									1.028	1.136
	540	2868	3063											0.830	1.236
	570														
	600														
	630														
	660														
	MIL	3261	3229	3162	3071									1.058	0.931
	VMAX	549	545	535	522									1.046	0.951
	MAX ENDURANCE														
	KTAS	442	459	476	488									1.045	0.953
	FUEL FLOW	2060	2291	2539	2835									1.048	0.950
	MAX RANGE														
	KTAS	510	516	516	516									1.045	0.953
	FUEL FLOW	2200	2417	2649	2926									1.048	0.950

Figure B4-3. (Sheet 50)

Subsonic Cruise — 45,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	2324	2496	2769										1.058	0.948
VMIN	381	422	474										1.044	0.955
180														
210														
240														
270														
300														
330														
360														
390	2273												1.083	0.915
420	2196												1.067	0.952
450	2224	2463											1.052	0.963
480	2309	2513	2779										1.039	0.986
510	2467	2667	2933										1.011	0.999
540														
570														
600														
630														
660														
MIL	3156	3112	3047										1.059	0.932
VMAX	535	528	518										1.046	0.951
MAX ENDURANCE														
KTAS	419	451	474										1.045	0.953
FUEL FLOW	2196	2463	2769										1.048	0.950
MAX RANGE														
KTAS	488	488	493										1.045	0.953
FUEL FLOW	2339	2542	2820										1.048	0.950

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	42	46	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	2375	2662											1.057	0.949
VMIN	394	455											1.043	0.955
180														
210														
240														
270														
300														
330														
360														
390														
420	2331												1.063	0.957
450	2386												1.039	0.977
480	2511	2745											1.024	1.002
510	2736	2976											0.993	1.017
540														
570														
600														
630														
660														
MIL	3076	3023											1.059	0.932
VMAX	522	514											1.045	0.951
MAX ENDURANCE														
KTAS	411	455											1.045	0.953
FUEL FLOW	2329	2662											1.048	0.950
MAX RANGE														
KTAS	470	487											1.045	0.953
FUEL FLOW	2459	2785											1.048	0.950

Figure B4-3. (Sheet 51)

Diversion Decision — Divert

DATA BASIS FLIGHT TEST **ENGINE F110-GE-129**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT SEA LEVEL

FUEL ON BOARD —LB	REMAIN AT SEA LEVEL	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	20	10.0K/0.50	20	16	70
400	38	20.0K/0.60	49	33	127
600	57	30.0K/0.70	83	53	184
800	76 0.44M	35.0K/0.75	120	64	215
1000	94	35.0K/0.75	158	64	215
1500	141	45.0K/0.90	258	98	304
2000	187	45.0K/0.90	357	98	304

IF YOU ARE AT 5000 FEET

FUEL ON BOARD —LB	REMAIN AT 5000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	26	10.0K/0.50	26	16	70
400	47	25.0K/0.66	57	43	157
600	68	30.0K/0.70	93	53	184
800	89 0.46M	35.0K/0.75	131	64	215
1000	110	35.0K/0.75	169	64	215
1500	162	45.0K/0.90	270	98	304
2000	213	45.0K/0.90	369	98	304

*** START DESCENT AT 9 NM. 41 LB FUEL USED IN DESCENT.**

IF YOU ARE AT 10,000 FEET

FUEL ON BOARD —LB	REMAIN AT 10,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	32	15.0K/0.53	32	24	97
400	56	25.0K/0.66	64	43	157
600	79	35.0K/0.75	103	64	215
800	103 0.50M	35.0K/0.75	141	64	215
1000	126	40.0K/0.90	181	83	265
1500	184	45.0K/0.90	282	98	304
2000	242	40.0K/0.90	382	83	265

*** START DESCENT AT 16 NM. 70 LB FUEL USED IN DESCENT.**

NOTES:

- 4.0% RANGE GAIN FOR 10 KNOTS TAILWIND.
- 2.5% RANGE LOSS FOR 10 KNOTS HEADWIND.
- SUBTRACT 2.0 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL DIVERT RANGE AT CURRENT ALTITUDE INCLUDES CRUISE AND DESCENT, AND TOTAL DIVERT RANGE AT OPTIMUM ALTITUDE INCLUDES CLIMB, CRUISE, AND DESCENT.

Figure B4-4. (Sheet 1)

Diversion Decision — Divert

DATA BASIS FLIGHT TEST **ENGINE F110-GE-129**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT 20,000 FEET

FUEL ON BOARD —LB	REMAIN AT 20,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*		ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	44		20.0K/0.60	44	33	127
400	74		35.0K/0.75	80	64	215
600	103		40.0K/0.90	123	83	265
800	132	0.60M	40.0K/0.90	164	83	265
1000	161		45.0K/0.90	205	98	304
1500	233		45.0K/0.90	307	98	304
2000	305		40.0K/0.90	406	83	265

* START DESCENT AT 33 NM. 126 LB FUEL USED IN DESCENT.

IF YOU ARE AT 30,000 FEET

FUEL ON BOARD —LB	REMAIN AT 30,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*		ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	56		30.0K/0.70	56	53	184
400	92		35.0K/0.75	94	64	215
600	128		40.0K/0.90	139	83	265
800	163	0.70M	45.0K/0.90	180	98	304
1000	199		45.0K/0.90	221	98	304
1500	287		45.0K/0.90	322	98	304
2000	374		40.0K/0.90	422	83	265

* START DESCENT AT 53 NM. 183 LB FUEL USED IN DESCENT.

IF YOU ARE AT 40,000 FEET

FUEL ON BOARD —LB	REMAIN AT 40,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*		ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	111		40.0K/0.90	111	83	265
600	153		40.0K/0.90	153	83	265
800	194	0.90M	45.0K/0.90	194	98	304
1000	235		45.0K/0.90	235	98	304
1500	336		45.0K/0.90	336	98	304
2000	436		40.0K/0.90	436	83	265

* START DESCENT AT 83 NM. 265 LB FUEL USED IN DESCENT.

NOTES:

- 4.0% RANGE GAIN FOR 10 KNOTS TAILWIND.
- 2.5% RANGE LOSS FOR 10 KNOTS HEADWIND.
- SUBTRACT 2.0 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL DIVERT RANGE AT CURRENT ALTITUDE INCLUDES CRUISE AND DESCENT, AND TOTAL DIVERT RANGE AT OPTIMUM ALTITUDE INCLUDES CLIMB, CRUISE, AND DESCENT.

Figure B4-4. (Sheet 2)

Diversion Decision — Loiter

DATA BASIS FLIGHT TEST **ENGINE F110-GE-129**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT SEA LEVEL

FUEL ON BOARD —LB	REMAIN AT SEA LEVEL		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	9		0.0K/0.31	9	0	0
600	13		15.0K/0.42	14	21	89
800	18	0.32M	30.0K/0.58	21	50	176
1000	22		35.0K/0.64	26	60	204
1500	32		30.0K/0.59	39	50	176
2000	42		30.0K/0.60	51	50	176

IF YOU ARE AT 5000 FEET

FUEL ON BOARD —LB	REMAIN AT 5000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	11		5.0K/0.35	11	7	34
600	15		20.0K/0.46	16	30	116
800	20	0.35M	30.0K/0.58	22	50	176
1000	24		35.0K/0.65	27	60	204
1500	35		30.0K/0.59	40	50	176
2000	46		30.0K/0.60	52	50	176

*** START DESCENT AT 7 NM. 34 LB FUEL USED IN DESCENT.**

IF YOU ARE AT 10,000 FEET

FUEL ON BOARD —LB	REMAIN AT 10,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	12		10.0K/0.38	12	14	63
600	17		25.0K/0.51	17	39	146
800	22	0.39M	35.0K/0.64	23	60	204
1000	26		30.0K/0.59	28	50	176
1500	38		30.0K/0.59	41	50	176
2000	49		30.0K/0.60	53	50	176

*** START DESCENT AT 14 NM. 63 LB FUEL USED IN DESCENT.**

NOTES:

- LOITER TIME AT CONSTANT ALTITUDE BASED ON 10 NM HOLDING PATTERN WITH 30-DEGREE BANK TURNS.
- ADD 0.4 MIN TO LOITER TIME FOR EACH 1000 FT OF DESTINATION ELEVATION.
- SUBTRACT 1.7 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL LOITER TIME AT CURRENT ALTITUDE INCLUDES LOITER AND DESCENT, AND TOTAL TIME AT OPTIMUM ALTITUDE INCLUDES CLIMB, LOITER, AND DESCENT.

Figure B4-4. (Sheet 3)

Diversion Decision — Loiter

DATA BASIS FLIGHT TEST **ENGINE F110-GE-129**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT 20,000 FEET

FUEL ON BOARD —LB	REMAIN AT 20,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	14		20.0K/0.46	14	30	116
600	20		30.0K/0.58	20	50	176
800	25	0.47M	30.0K/0.59	25	50	176
1000	30		30.0K/0.59	30	50	176
1500	42		30.0K/0.59	43	50	176
2000	53		30.0K/0.60	55	50	176

* START DESCENT AT 30 NM. 116 LB FUEL USED IN DESCENT.

IF YOU ARE AT 30,000 FEET

FUEL ON BOARD —LB	REMAIN AT 30,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	—		—	—	—	—
600	22		30.0K/0.58	22	50	176
800	27	0.59M	30.0K/0.59	27	50	176
1000	32		30.0K/0.59	32	50	176
1500	45		30.0K/0.60	45	50	176
2000	56		30.0K/0.60	56	50	176

* START DESCENT AT 49 NM. 175 LB FUEL USED IN DESCENT.

IF YOU ARE AT 40,000 FEET

FUEL ON BOARD —LB	REMAIN AT 40,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	—		—	—	—	—
600	23		40.0K/0.72	23	75	245
800	28	0.73M	40.0K/0.72	28	75	245
1000	33		40.0K/0.73	33	75	245
1500	44		40.0K/0.74	44	75	245
2000	55		40.0K/0.75	55	75	245

* START DESCENT AT 75 NM. 244 LB FUEL USED IN DESCENT.

NOTES:

- LOITER TIME AT CONSTANT ALTITUDE BASED ON 10 NM HOLDING PATTERN WITH 30-DEGREE BANK TURNS.
- ADD 0.4 MIN TO LOITER TIME FOR EACH 1000 FT OF DESTINATION ELEVATION.
- SUBTRACT 1.7 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL LOITER TIME AT CURRENT ALTITUDE INCLUDES LOITER AND DESCENT, AND TOTAL TIME AT OPTIMUM ALTITUDE INCLUDES CLIMB, LOITER, AND DESCENT.

Figure B4-4. (Sheet 4)

Best Cruise Altitude for Short Range Mission — Penetration Descent

DATA BASIS FLIGHT TEST **ENGINE F110-GE-129**

CONDITIONS:
- **STANDARD DAY**
- **NO WIND**
- **MIL CLIMB AT SCHEDULE KIAS OR CONSTANT ALTITUDE OPTIMUM CRUISE MACH NO., WHICHEVER IS LOWER**
- **CRUISE AT CONSTANT ALTITUDE AT OPTIMUM MACH**
- **DESCEND AT IDLE WITH SPEEDBRAKES OPEN**
- **DESCENT SPEED = CRUISE MACH TO 300 KIAS, THEN 300 KIAS**

START CLIMB GROSS WEIGHT*	TOTAL MISSION RANGE**	BEST CRUISE ALTITUDE	TOTAL FUEL CONSUMED (LB)/DESCENT RANGE (NM)					
			DI 0	DI 50	DI 100	DI 150	DI 200 (C)	DI 250
LB	NM	FT						
20,000	50	24,200	421/12.4	451/11.6	479/11.0	508/10.5	537/10.3	565/10.1
20,000	100	30,800	654/16.2	712/15.2	769/14.5	821/13.9	874/13.3	927/12.6
20,000	150	36,200	862/19.4	944/18.2	1029/17.1	1114/16.3	1189/15.8	1256/15.4
20,000	200	37,500	1078/20.1	1168/19.0	1274/17.8	1381/17.1	1484/16.3	1572/16.0
20,000	250	42,000	1239/23.1	1401/21.4	1519/20.6	1648/19.5	1765/18.8	1876/18.0
24,000	50	19,600	456/11.7	488/10.9	517/10.3	549/9.8	585/9.3	617/9.0
24,000	100	29,200	726/18.3	795/17.0	860/16.0	923/15.1	987/14.4	1048/13.7
24,000	150	33,400	972/20.9	1064/19.6	1159/18.4	1258/17.4	1352/16.5	1437/15.9
24,000	200	35,800	1204/22.8	1320/21.0	1440/19.8	1564/18.6	1687/17.6	1804/16.8
24,000	250	37,500	1411/24.1	1594/22.0	1726/20.7	1874/19.5	2021/18.5	2146/17.7
28,000	50	16,900	482/11.9	520/11.0	552/10.4	589/9.7	628/9.2	664/8.8
28,000	100	27,000	795/19.5	875/18.1	946/17.0	1018/16.0	1094/15.1	1162/14.4
(A) 28,000	(B) 150	(D) 30,900	1080/22.3	1181/20.7	1286/19.4	1394/18.3 (E)	1499/17.4	(F) 1599/16.5
28,000	200	33,500	1333/25.1	1480/22.3	1617/21.0	1756/19.8	1892/18.8	2017/17.8
28,000	250	36,000	1560/26.6	1754/24.3	1921/22.6	2094/21.3	2259/20.1	2430/19.1
32,000	50	14,200	506/11.4	548/10.5	585/9.9	625/9.2	668/8.6	709/8.1
32,000	100	21,600	862/17.5	947/16.2	1031/15.1	1106/14.1	1182/13.3	1255/12.6
32,000	150	28,100	1177/22.9	1292/21.0	1415/19.7	1534/18.6	1649/17.6	1757/16.8
32,000	200	33,600	1440/28.1	1623/25.8	1781/24.0	1935/22.7	2090/21.4	2283/20.1
32,000	250	33,700	1720/27.9	1940/25.6	2131/23.7	2316/22.4	2501/21.1	2724/19.9
36,000	50	11,300	527/10.4	574/9.5	615/8.9	658/8.3	707/7.7	751/7.2
36,000	100	20,000	922/18.0	1016/16.6	1105/15.5	1187/14.5	1274/13.7	1356/12.9
36,000	150	25,900	1286/23.3	1403/21.3	1537/20.2	1669/19.1	1798/18.0	1912/17.1
36,000	200	30,000	1574/27.8	1771/25.3	1940/23.7	2116/22.3	2277/20.8	2424/19.8
36,000	250	30,000	1890/27.6	2131/25.0	2335/23.4	2548/22.0	2741/20.5	2920/19.5
40,000	50	9,500	546/10.0	597/9.0	646/8.2	693/7.8	745/7.2	793/6.8
40,000	100	18,900	980/18.5	1084/17.1	1179/16.1	1270/15.1	1370/14.3	1460/13.4
40,000	150	25,100	1368/25.2	1515/22.7	1660/21.3	1802/20.3	1939/19.2	2072/18.1
40,000	200	28,000	1698/27.9	1913/25.7	2100/24.1	2292/22.8	2469/21.2	2629/20.1
40,000	250	28,000	2047/27.8	2309/25.4	2536/23.8	2768/22.5	2983/21.0	3177/19.9

* **CLIMB BEGINS AT SL.**
** **CLIMB/CRUISE/DESCENT.**

Figure B4-5. (Sheet 1)

Best Cruise Altitude for Short Range Mission — Maximum Range Descent

DATA BASIS FLIGHT TEST **ENGINE F110-GE-129**

CONDITIONS:

- **STANDARD DAY**
- **NO WIND**
- **MIL CLIMB AT SCHEDULED KIAS OR CONSTANT ALTITUDE OPTIMUM CRUISE MACH NO., WHICHEVER IS LOWER**
- **CRUISE AT CONSTANT ALTITUDE AT OPTIMUM MACH**
- **DESCEND AT IDLE WITH SPEEDBRAKES CLOSED**
- **DRAG INDEX/DESCENT SPEED KIAS = 0/215, 50/220, ≥ 100/230**

START CLIMB GROSS WEIGHT*	TOTAL MISSION RANGE**	BEST CRUISE ALTITUDE	TOTAL FUEL CONSUMED (LB)/DESCENT RANGE (NM)					
LB	NM	FT	DI 0	DI 50	DI 100	DI 150	DI 200	DI 250
20,000	50	22,900	374/42.5	387/38.5	411/33.3	438/30.3	467/27.7	495/25.5
20,000	100	32,900	606/69.1	652/60.2	701/50.5	750/45.5	803/41.6	852/38.3
20,000	150	37,400	824/86.5	880/72.5	952/60.9	1031/54.6	1110/49.6	1179/45.2
20,000	200	42,000	1004/111.4	1107/94.7	1198/73.7	1301/65.6	1397/58.6	1490/53.5
20,000	250	42,000	1194/112.0	1323/94.8	1435/73.2	1559/65.0	1675/58.2	1784/53.1
24,000	50	19,500	398/36.0	422/32.9	442/30.0	471/27.8	506/25.7	538/23.9
24,000	100	30,100	666/60.2	721/54.1	773/48.2	831/44.4	893/41.0	951/38.2
24,000	150	35,200	909/76.3	984/65.7	1065/58.3	1156/53.7	1245/49.9	1333/46.0
24,000	200	37,900	1123/86.4	1251/77.2	1350/65.3	1466/59.8	1584/54.8	1689/50.5
24,000	250	37,900	1345/87.1	1506/76.4	1628/65.2	1768/59.7	1908/54.6	2037/50.3
28,000	50	19,900	418/36.7	447/33.9	478/31.0	509/29.1	547/27.6	583/25.9
28,000	100	27,900	730/52.8	792/49.2	850/45.0	916/42.2	987/39.6	1051/37.1
28,000	150	32,600	1008/65.4	1096/58.5	1187/54.0	1285/50.6	1388/47.3	1479/44.0
28,000	200	36,000	1242/74.4	1379/67.9	1498/61.7	1633/57.4	1762/53.7	1900/50.1
28,000	250	36,000	1491/74.8	1661/68.2	1809/61.8	1971/57.3	2127/53.7	2293/50.0
32,000	50	17,500	445/31.5	481/29.1	514/27.3	551/25.7	592/24.5	632/23.3
32,000	100	25,700	797/45.9	867/43.6	929/41.0	1004/38.8	1083/36.8	1154/34.6
32,000	150	31,600	1093/59.9	1212/54.8	1309/52.1	1422/49.1	1532/46.0	1633/43.4
32,000	200	33,100	1373/62.8	1532/58.4	1666/55.1	1808/52.0	1953/48.7	2116/45.8
32,000	250	33,900	1648/64.6	1844/60.5	2012/56.8	2185/53.5	2361/50.4	2594/47.1
36,000	50	14,600	475/26.1	516/24.0	555/22.6	594/21.4	641/20.3	682/19.4
36,000	100	22,100	865/37.4	947/35.8	1014/34.5	1097/32.5	1183/31.0	1260/29.2
36,000	150	29,700	1192/52.2	1325/48.7	1434/47.1	1561/44.7	1680/42.0	1790/39.9
36,000	200	30,000	1508/52.9	1687/49.5	1832/47.8	1996/45.4	2150/42.6	2290/40.6
36,000	250	30,000	1825/53.3	2046/49.6	2227/47.9	2427/45.4	2615/42.6	2785/40.7
40,000	50	11,800	500/22.0	549/19.7	592/18.5	637/17.5	689/16.7	734/16.0
40,000	100	20,300	932/32.9	1023/31.7	1100/30.6	1192/29.1	1286/27.6	1370/26.1
40,000	150	28,000	1291/46.3	1440/43.9	1563/42.9	1704/40.9	1834/38.5	1953/36.6
40,000	200	28,000	1641/46.7	1838/44.1	2001/43.1	2183/41.0	2352/38.6	2505/36.9
40,000	250	28,000	1988/47.1	2233/44.2	2436/43.3	2658/41.2	2865/38.8	3052/37.1

* **CLIMB BEGINS AT SL.**
** **CLIMB/CRUISE/DESCENT.**

Figure B4-5. (Sheet 2)

PART 5 – ENDURANCE

Refer to SUBSONIC CRUISE TABLES, Part 4, for endurance information.

PART 6 – DESCENT

TABLE OF CONTENTS

LIST OF CHARTS

MAXIMUM RANGE DESCENT

Maximum range descent performance data is presented in figure B6-1. The data is based on a descent speed which results in maximum distance (range) being covered during descent. Effects of GW and drag index are shown in the chart. Descent speed is tabulated on the chart.

REFER TO FIGURE B6-1.

Enter chart on sheet 1 with initial altitude (A), proceed upward to intercept appropriate drag index line (B), and then proceed to the right to the baseline. Note this point on the baseline. Enter GW block at (C), proceed to the right to intercept the appropriate drag index line (B), and proceed downward to intercept a line (D) which follows the guidelines and intercepts the point previously noted on the baseline. Continue to the right to read range (E). Repeat this process on sheet 2 in the same manner to obtain the fuel consumed (F) and time (G). If final altitude is above sea level, repeat the above process, using final altitude in place of initial altitude. The difference between the resulting values is then range, fuel, and time to descend from initial to final altitude. Obtain descent speed from the table on the chart.

SAMPLE PROBLEM.

A.	Initial altitude	=	30,000 feet
B.	Drag index	=	50
C.	GW	=	30,000 pounds
D.	Intersection point		
E.	Range	=	46 nm
F.	Fuel consumed	=	164 pounds
G.	Time	=	10.0 minutes
•	Descent speed	=	220 KIAS

The above data is for a descent to sea level. If the descent was stopped at 5000 feet:

•	Range	=	46 – 7 = 39 nm
•	Fuel consumed	=	165 – 33 = 132 pounds
•	Time	=	10.0 – 1.8 = 8.2 minutes

PENETRATION DESCENT

Fuel consumed, distance, and time to execute a penetration descent are shown in figure B6-2. The data is based on idle rpm, 300 KIAS, and speedbrakes open. Effects of GW and drag index are shown on the chart.

REFER TO FIGURE B6-2.

Enter chart with initial altitude (A), proceed upward to intercept appropriate drag index line in the time, range, and fuel blocks (B), and then proceed to the right to GW baseline and follow guidelines to GW (C). Continue to the right to read fuel consumed (D), range (E), and time (F). If final altitude is above sea level, repeat the above process using final altitude in place of initial altitude. The difference between the resulting values is then fuel, range, and time to descend from initial to final altitude.

SAMPLE PROBLEM.

A. Initial altitude = 30,000 feet
B. Drag index = 100
C. GW = 24,000 pounds
D. Fuel consumed = 57 pounds
E. Range = 18 nm
F. Time = 3.0 minutes

The above data is for a descent to sea level. If the descent was stopped at 5000 feet:

- Fuel consumed = 57 – 9 = 48 pounds
- Range = 18 – 3 = 15 nm
- Time = 3.0 – 0.5 = 2.5 minutes

DESCENT WITH INOPERATIVE ENGINE

Figure B6-3 contains time and distance data for a descent with an inoperative engine. The data is presented as a function of descent airspeed for descents from various initial altitudes to sea level. Minimum EPU operating time is shown.

The chart is intended to be used to estimate the time available for engine airstart attempts once the aircraft has been maneuvered into the airstart envelope and may also be used to obtain glide distance with the engine inoperative.

REFER TO FIGURE B6-3.

Enter the chart with airspeed (A), proceed upward to the appropriate GW/altitude line (B), and then to the left to read time (C) and distance (D). To determine time and distance available to descend to another altitude, repeat the above steps for the final altitude and take the difference between the sets of data.

SAMPLE PROBLEM.

A. Descent airspeed = 250 KIAS
B. GW/altitude = 20,000 pounds/ 30,000 feet
C. Time (to sea level) = 8.0 minutes
D. Distance (to sea level) = 40.9 nm

If the descent was stopped at 5000 feet:

- Time = 8.0 – 1.5 = 6.5 minutes
- Distance = 40.9 – 6.6 = 34.3 nm

Maximum Range Descent — IDLE

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- SPEEDBRAKES — CLOSED

CONDITIONS:
- STANDARD DAY

DESCENT SPEED	
DRAG INDEX	KIAS
0	215
50	220
100	230
200	230
300	230
400	230

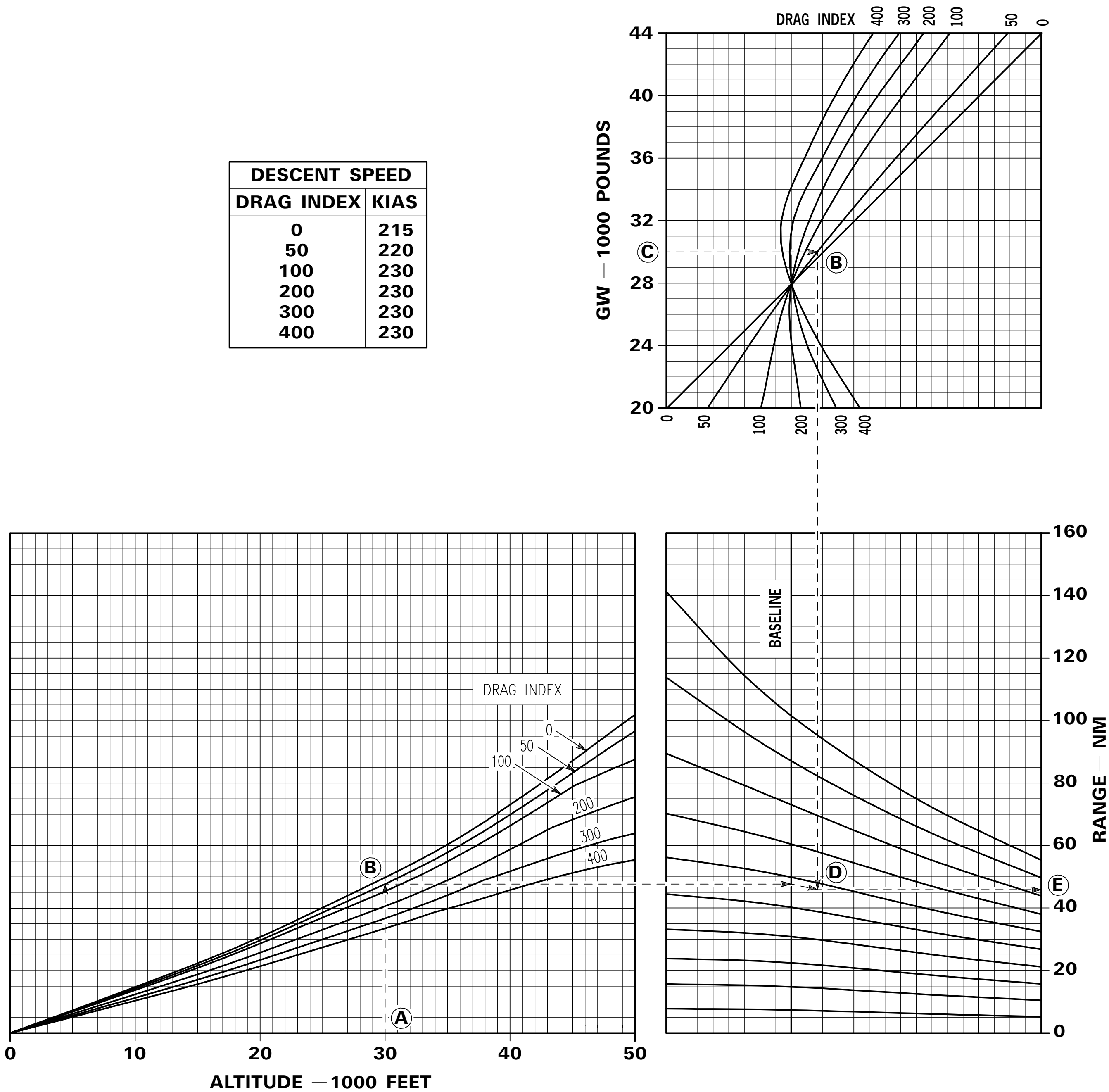


Figure B6-1. (Sheet 1)

Maximum Range Descent — IDLE

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- SPEEDBRAKES — CLOSED

CONDITIONS:
- STANDARD DAY

DESCENT SPEED	
DRAG INDEX	KIAS
0	215
50	220
100	230
200	230
300	230
400	230

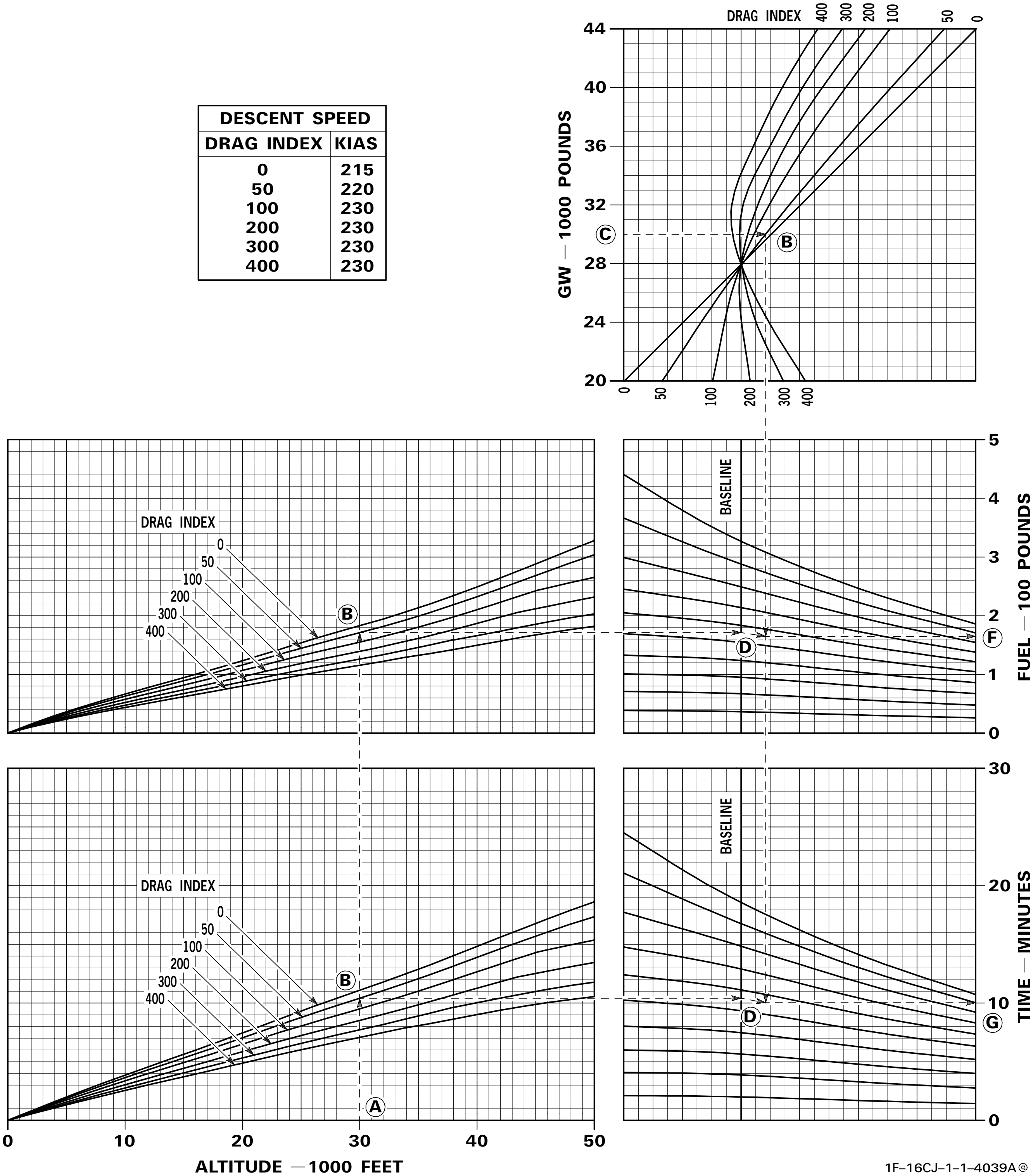


Figure B6-1. (Sheet 2)

Penetration Descent

DATA BASIS FLIGHT TEST

ENGINE F110–GE–129

CONFIGURATION:
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE
- DESCENT SPEED = CRUISE MACH TO 300 KIAS, THEN 300 KIAS
- STANDARD DAY

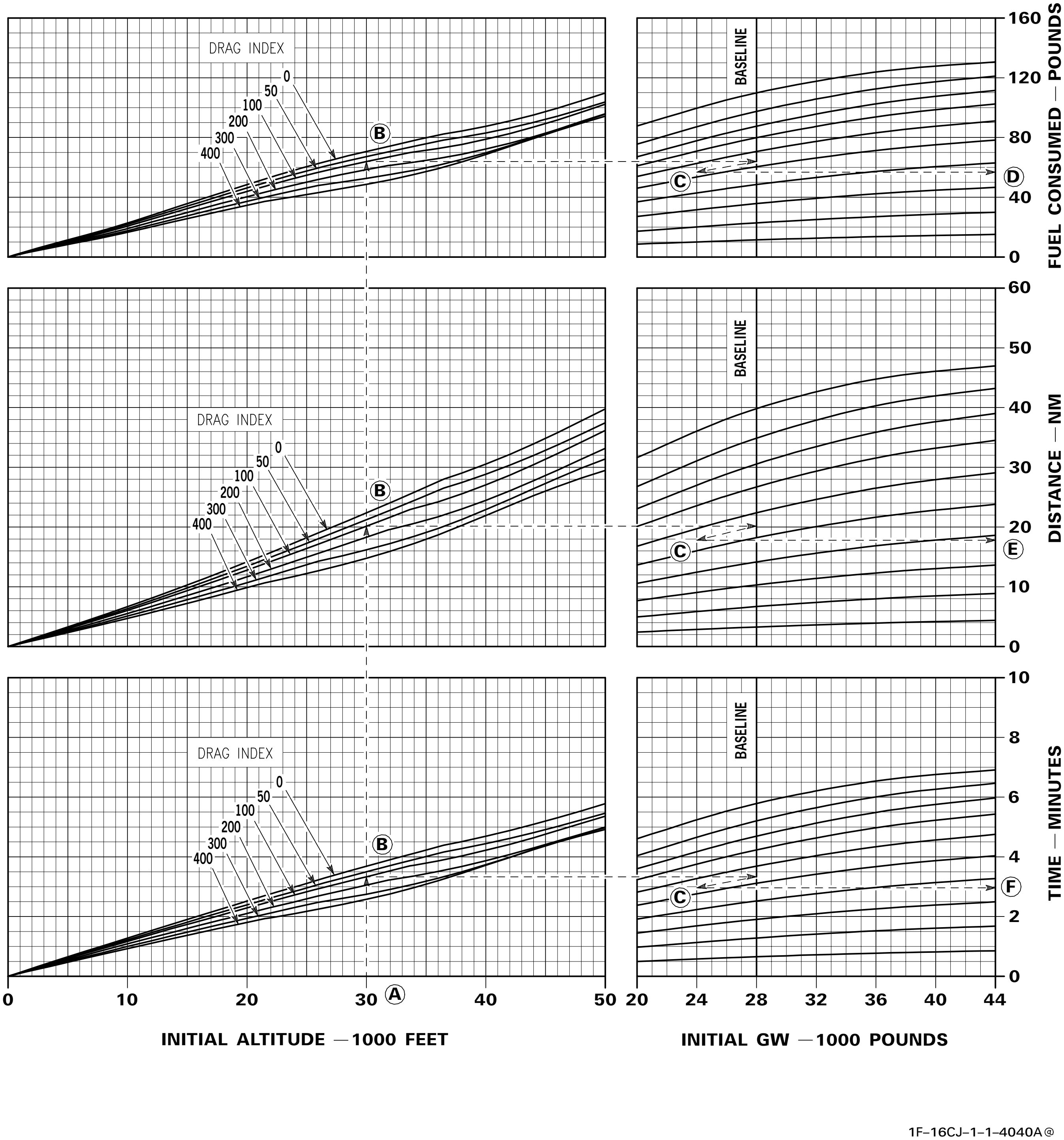


Figure B6-2.

Descent With Inoperative Engine

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:

- DRAG INDEX = 0

CONDITIONS:

- STANDARD DAY
- WINDMILLING ENGINE OR LOCKED ROTOR
- NO WIND

NOTE: REDUCE TIME AND DISTANCE 1% FOR EACH 10–UNIT INCREASE IN DRAG INDEX.

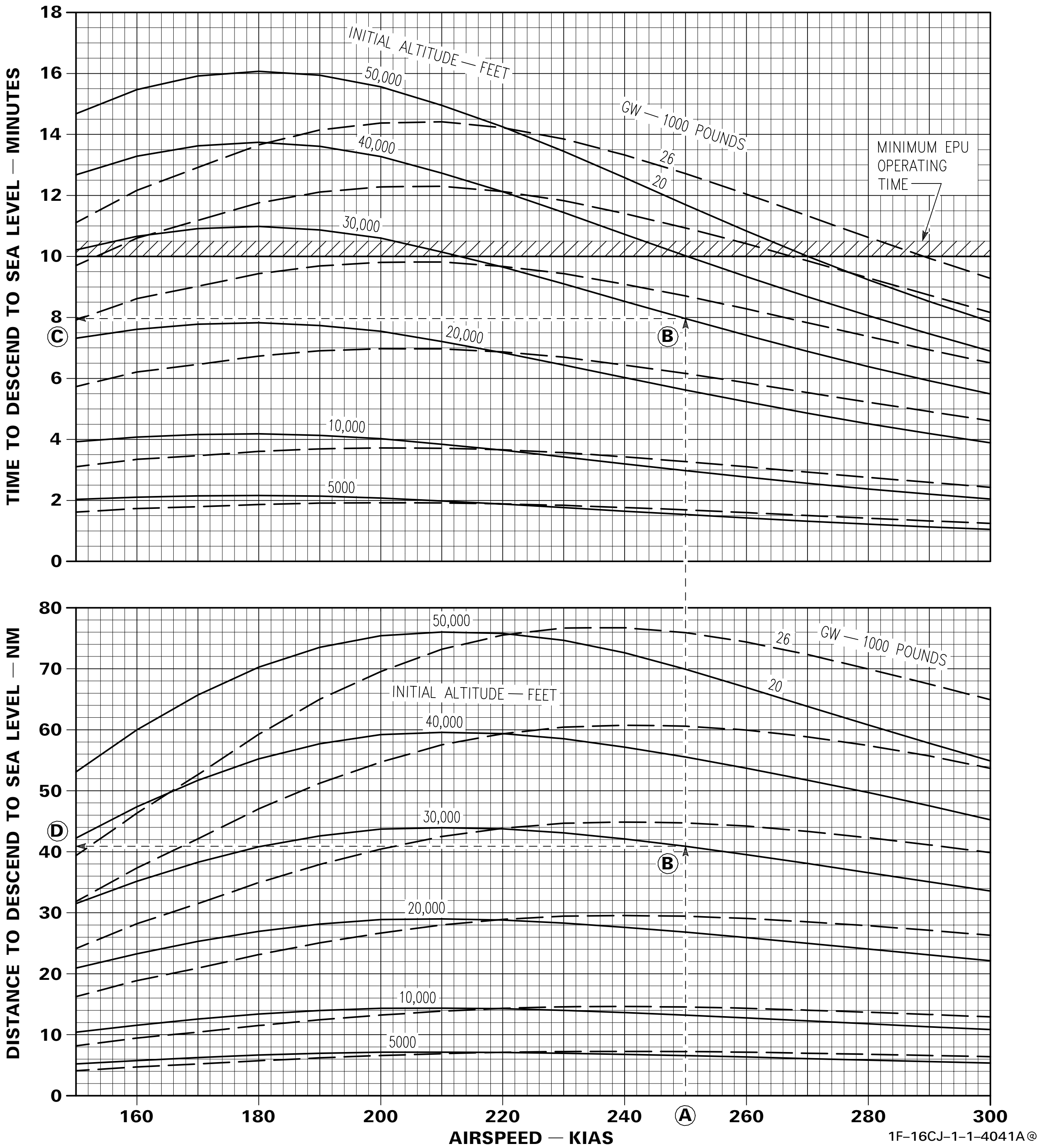


Figure B6-3.

PART 7 – LANDING

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LIST OF CHARTS

DEFINITION OF TERMS

Aerodynamic braking (two-point attitude) – Use of speedbrakes and maximum of 13 degrees AOA until deceleration to 100 KIAS.

Maximum effort braking – A single continuous wheel brake application using maximum pedal pressure (antiskid on) in conjunction with two-point aerodynamic braking (consistent with maintaining directional control). When wheel brakes become effective, the aircraft will automatically rotate to the three-point attitude. After the nose tire is on the runway, maintain full aft stick short of nose tire lift-off and open speedbrakes fully. On a dry runway, the nose lowers soon after wheel brakes are applied. **LESS** 129 On a wet or icy runway, wheel brakes are not applied until deceleration to 100 KIAS to allow wheel spinup and proper antiskid operation. 129 On a wet or icy runway, apply brakes at any landing speed. Short Field Landing Distance charts are based on brakes applied at 100 KIAS.

Use drag chute immediately after touchdown in conjunction with proper wheel braking and allow aircraft to rotate to the three–point attitude as the drag chute opens. At touchdown speeds above 170 KIAS use maximum effort braking and delay drag chute deployment (and rotation to three-point attitude) until deceleration to 170 KIAS.

LANDING SPEED

Final approach and touchdown airspeeds are given in figure B7-1. Both airspeeds are based on 13 degrees AOA, matching the AOA indexer on speed indication.

SAMPLE PROBLEM.

A.	GW	=	20,000 pounds
B.	Touchdown speed	=	125 KIAS
C.	Final approach speed	=	136 KIAS

SHORT FIELD LANDING

Ground roll distance for minimum distance landing is given in figure B7-2 (sheets 1 through 6).

Data for measured runway condition readings (RCR) not provided on charts can be obtained by interpolation. For wet runways, interpolate between RCR 18 (WET), RCR 12 (WET), and RCR 10 (WET). For runways with no liquid water present, interpolate between RCR 23 (DRY CONCRETE), RCR 16 (DRY), RCR 8 (SNOW), and RCR 4 (ICY). If RCR is unknown and runway is wet, use RCR 18 (WET) for wet concrete and RCR 12 (WET) for wet asphalt.

REFER TO FIGURE B7-2.

Enter sheet 1 with pressure altitude (A), proceed to the right to temperature (B), down to GW (C), and finally to the right and read uncorrected ground roll distance (D). Enter sheets 2 and 3 with uncorrected ground roll distance (D). Continue to the right to the reported RCR (E) or (I), proceed down to baseline and follow guidelines to wind (F), and then proceed down to baseline and follow guidelines to slope (G). Finally, proceed down to read corrected ground roll distance (H) or (J).

Short field landing with drag chute is shown on sheets 4 through 6.

SAMPLE PROBLEM (SHEET 1).

A.	Altitude	=	2000 feet
B.	Temperature	=	40°C
C.	GW	=	28,000 pounds
D.	Uncorrected ground roll distance:		
	• PRI	=	3902 feet
	• SEC (3902 × 1.04)	=	4058 feet

SAMPLE PROBLEM (SHEET 2).

D.	Uncorrected ground roll distance (SEC)	=	3902 feet
E.	RCR	=	16
F.	Wind	=	10 knots (headwind)
G.	Slope	=	1 percent (uphill)
H.	Corrected ground roll distance	=	3375 feet
I.	RCR	=	4
J.	Corrected ground roll distance	=	8000 feet

SAMPLE PROBLEM (SHEET 3).

D.	Uncorrected ground roll distance (SEC)	=	4058 feet
E.	RCR	=	16
F.	Wind	=	10 knots (headwind)
G.	Slope	=	1 percent (uphill)
H.	Corrected ground roll distance	=	3507 feet
I.	RCR	=	8
J.	Corrected ground roll distance	=	6031 feet

SAMPLE PROBLEM (SHEET 4).

A.	Altitude	=	2000 feet
B.	Temperature	=	40°C
C.	GW	=	28,000 pounds
D.	Uncorrected ground roll distance:		
	• PRI	=	2504 feet
	• SEC (2504 × 1.02)	=	2554 feet

SAMPLE PROBLEM (SHEET 5).

D.	Uncorrected ground roll distance (SEC)	=	2504 feet
E.	RCR	=	16
F.	Wind	=	10 knots (headwind)
G.	Slope	=	1 percent (uphill)
H.	Corrected ground roll distance	=	2107 feet
I.	RCR	=	4
J.	Corrected ground roll distance	=	3795 feet

SAMPLE PROBLEM (SHEET 6).

D.	Uncorrected ground roll distance (SEC)	=	2554 feet
E.	RCR	=	16
F.	Wind	=	10 knots (headwind)
G.	Slope	=	1 percent (uphill)
H.	Corrected ground roll distance	=	2158 feet
I.	RCR	=	4
J.	Corrected ground roll distance	=	4332 feet

Landing Speed

DATA BASIS ESTIMATED

CONFIGURATION:

- ALL DRAG INDEXES

CONDITIONS:

- ALL TEMPERATURES
- ALL ALTITUDES
- 13 DEGREES AOA (INDEXER ON SPEED)

NOTE:
THE BASELINE AIRSPEEDS ARE BASED ON THE BASIC OPERATING WEIGHT PLUS FULL AMMO. ACTUAL APPROACH AIRSPEED AT 13 DEGREES AOA MAY DIFFER BY +/–5 KNOTS DUE TO VARIATIONS IN AIRCRAFT CG.

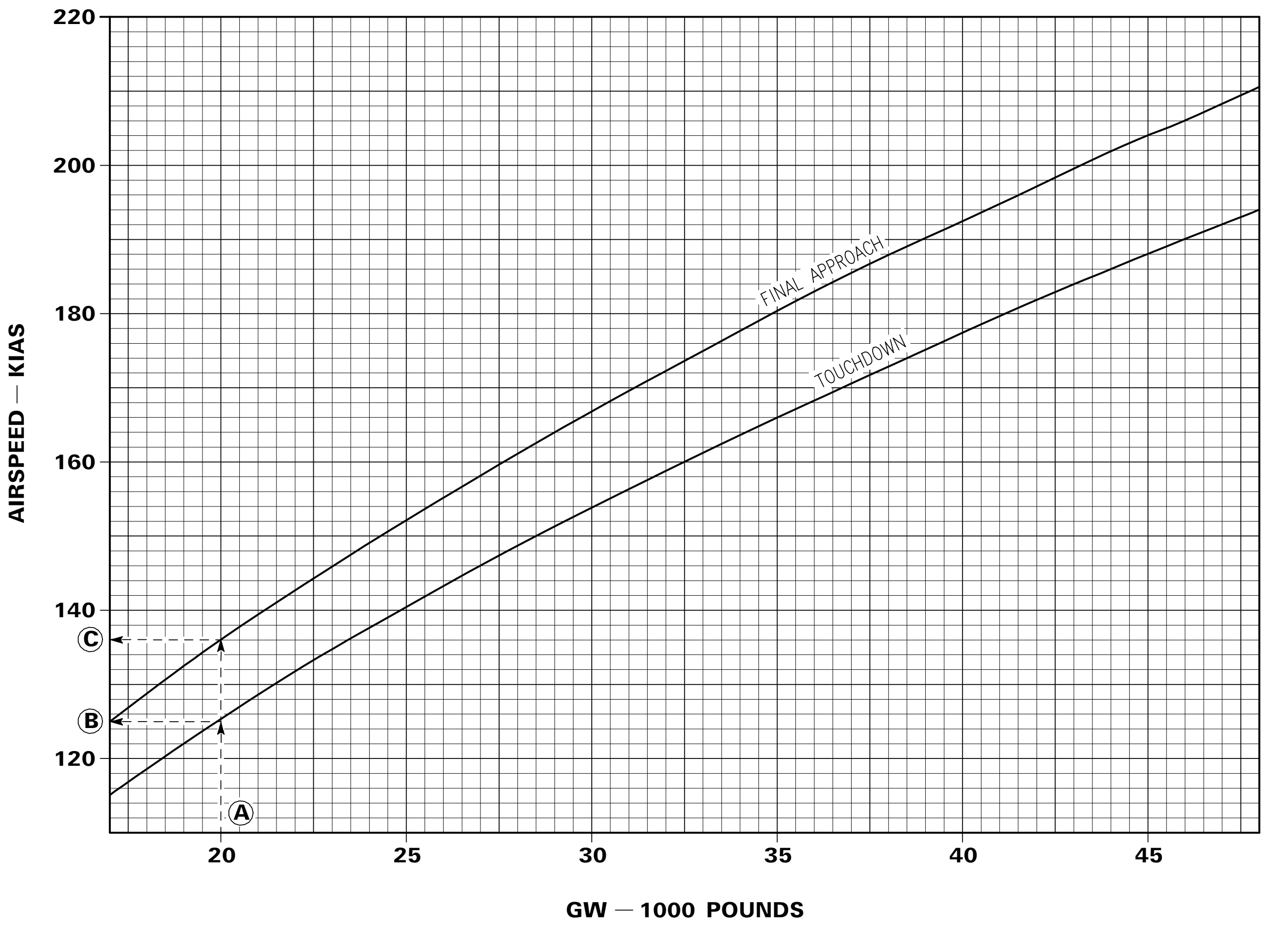


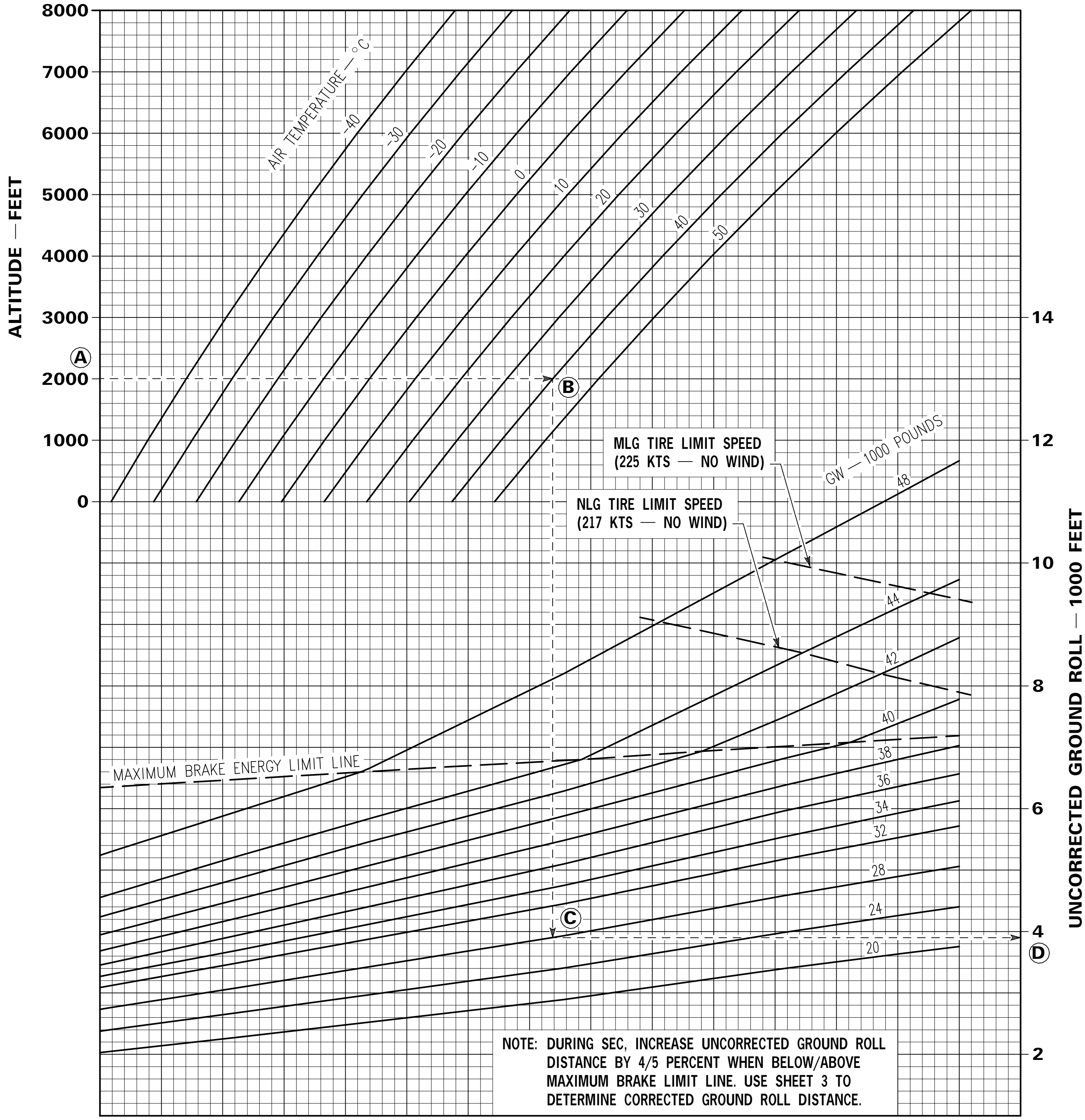
Figure B7-1.

Short Field Landing Distance (Uncorrected)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- ZERO WIND AND SLOPE
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- DRY CONCRETE RUNWAY



1F–16CJ–1–1–4043A

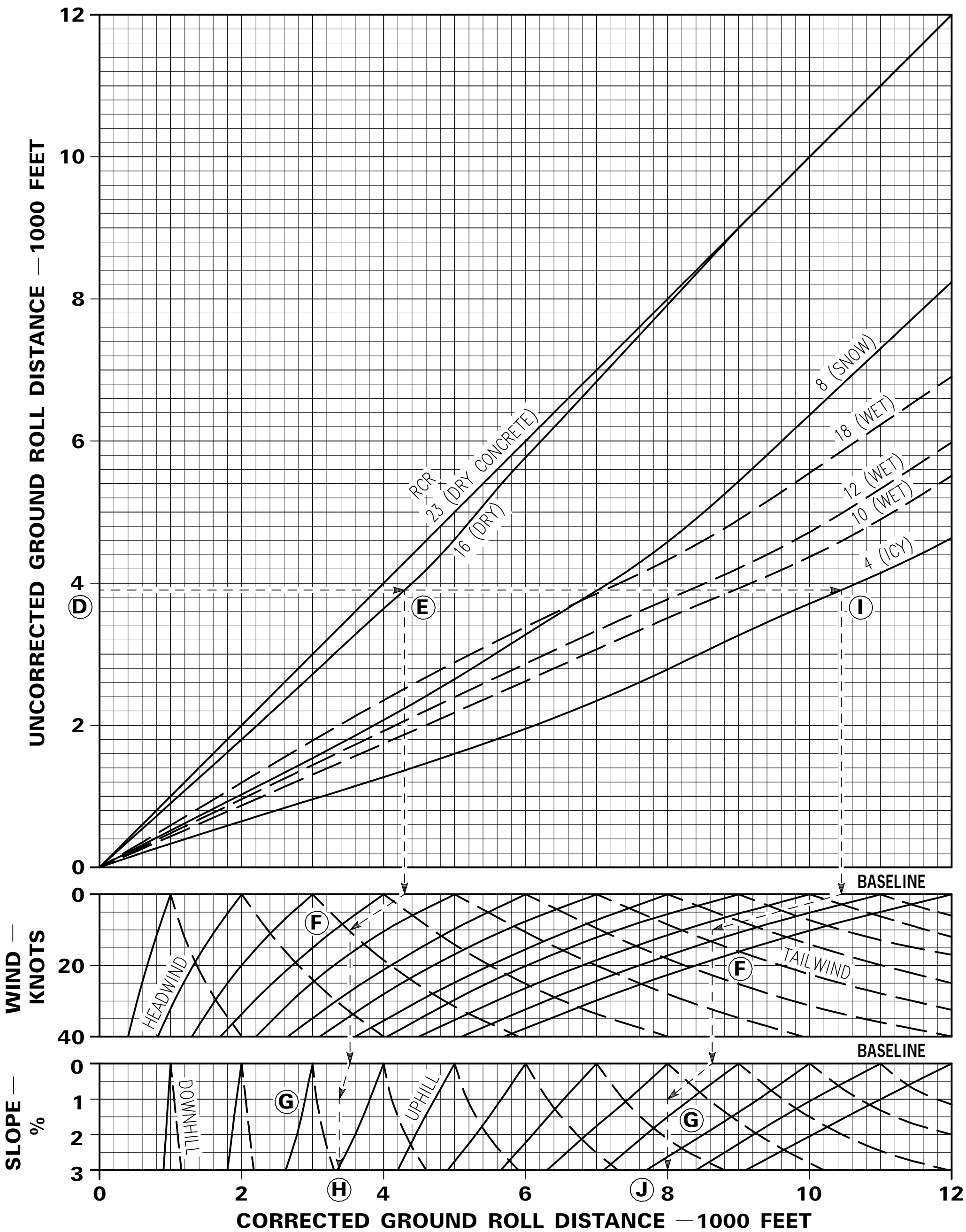
Figure B7-2. (Sheet 1)

Short Field Landing Distance (Corrected)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 1



1F–16CJ–1–1–4044A @

Figure B7-2. (Sheet 2)

Short Field Landing Distance — SEC (Corrected)

DATA BASIS ESTIMATED | **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE

WARNING

ON AN ICY RUNWAY (RCR = 4) WITH SEC, THE STOPPING DISTANCE WITH ZERO HEADWIND EXCEEDS 14,000 FEET.

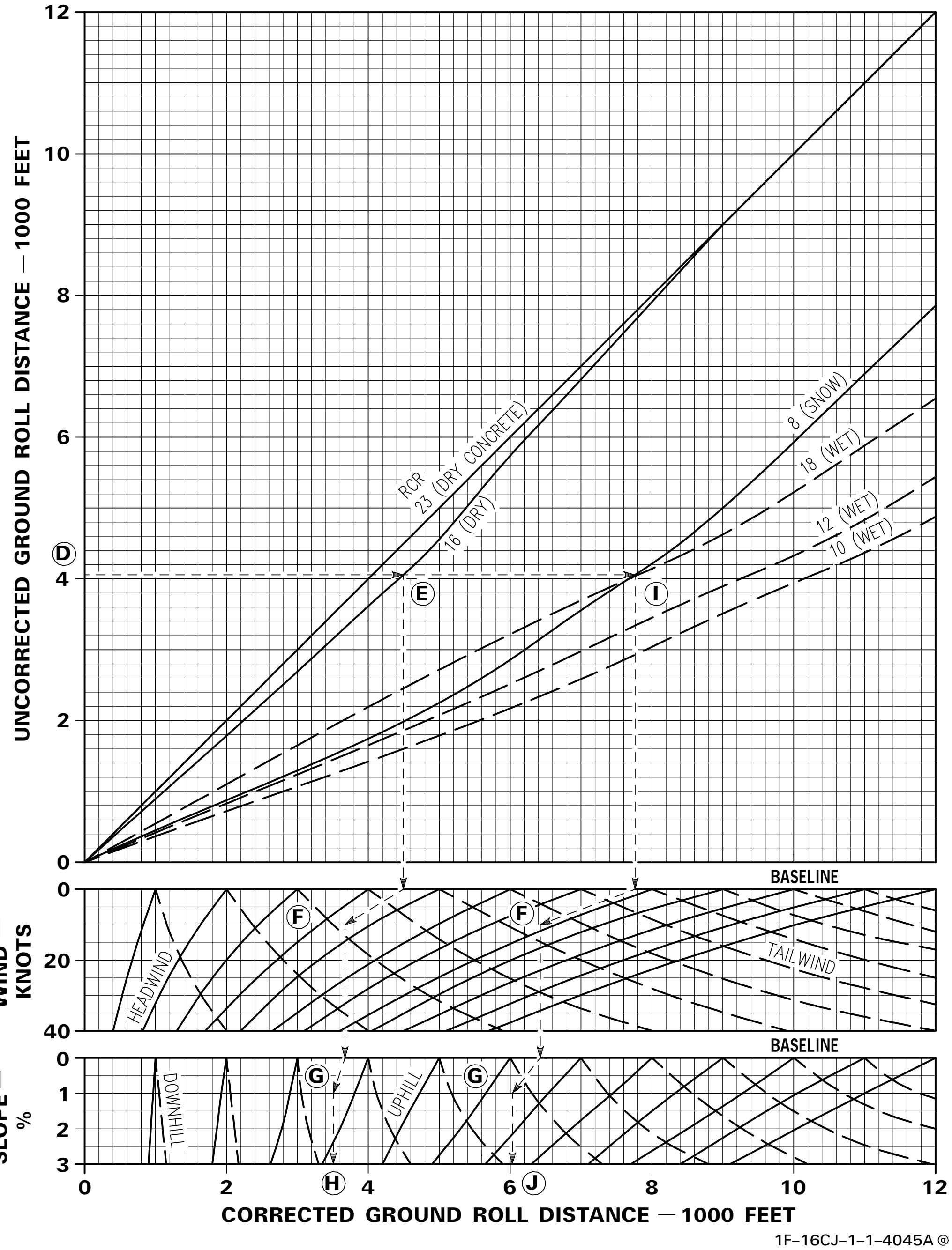


Figure B7-2. (Sheet 3)

Short Field Landing Distance — With Drag Chute (Uncorrected)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- ZERO WIND AND SLOPE
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- DRY CONCRETE RUNWAY

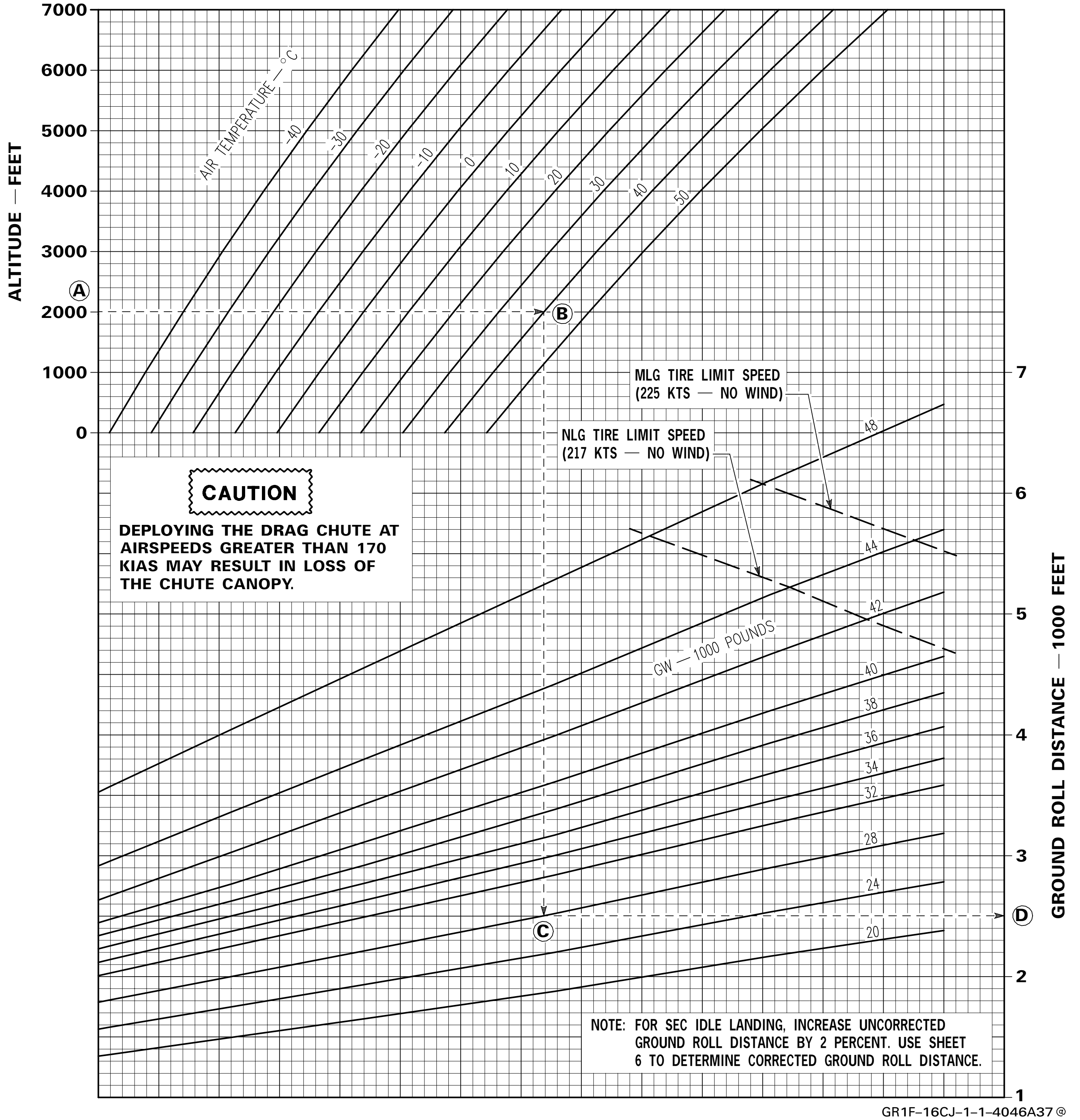


Figure B7-2. (Sheet 4)

Short Field Landing Distance — With Drag Chute (Corrected)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 4

CAUTION

DEPLOYING THE DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

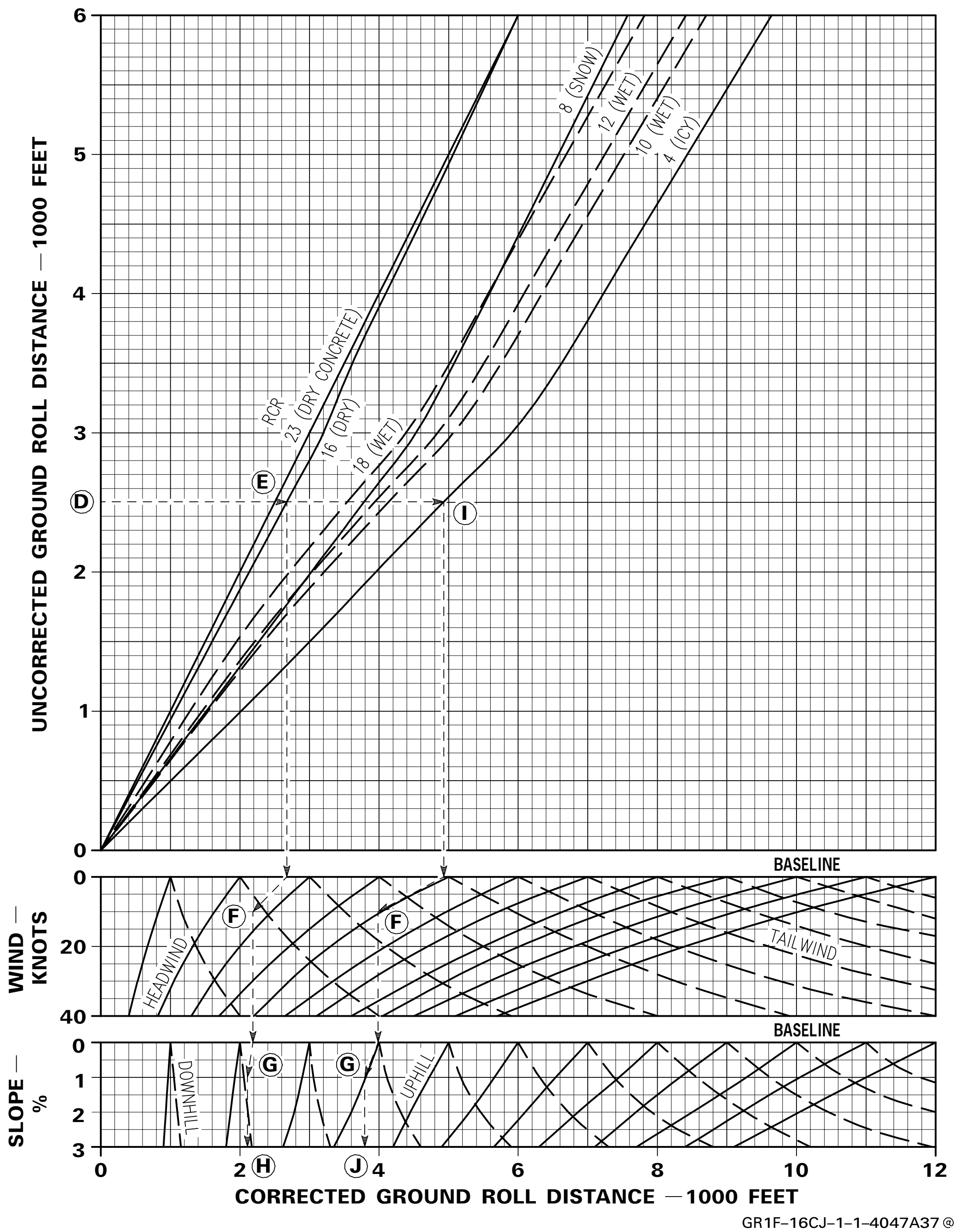


Figure B7-2. (Sheet 5)

Short Field Landing Distance — SEC With Drag Chute (Corrected)

DATA BASIS ESTIMATED **ENGINE F110–GE–129**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:

- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 4

WARNING

ON AN ICY RUNWAY (RCR=4) WITH SEC, THE STOPPING DISTANCE WITH ZERO HEADWIND MAY EXCEED 12,000 FEET.

CAUTION

DEPLOYING THE DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

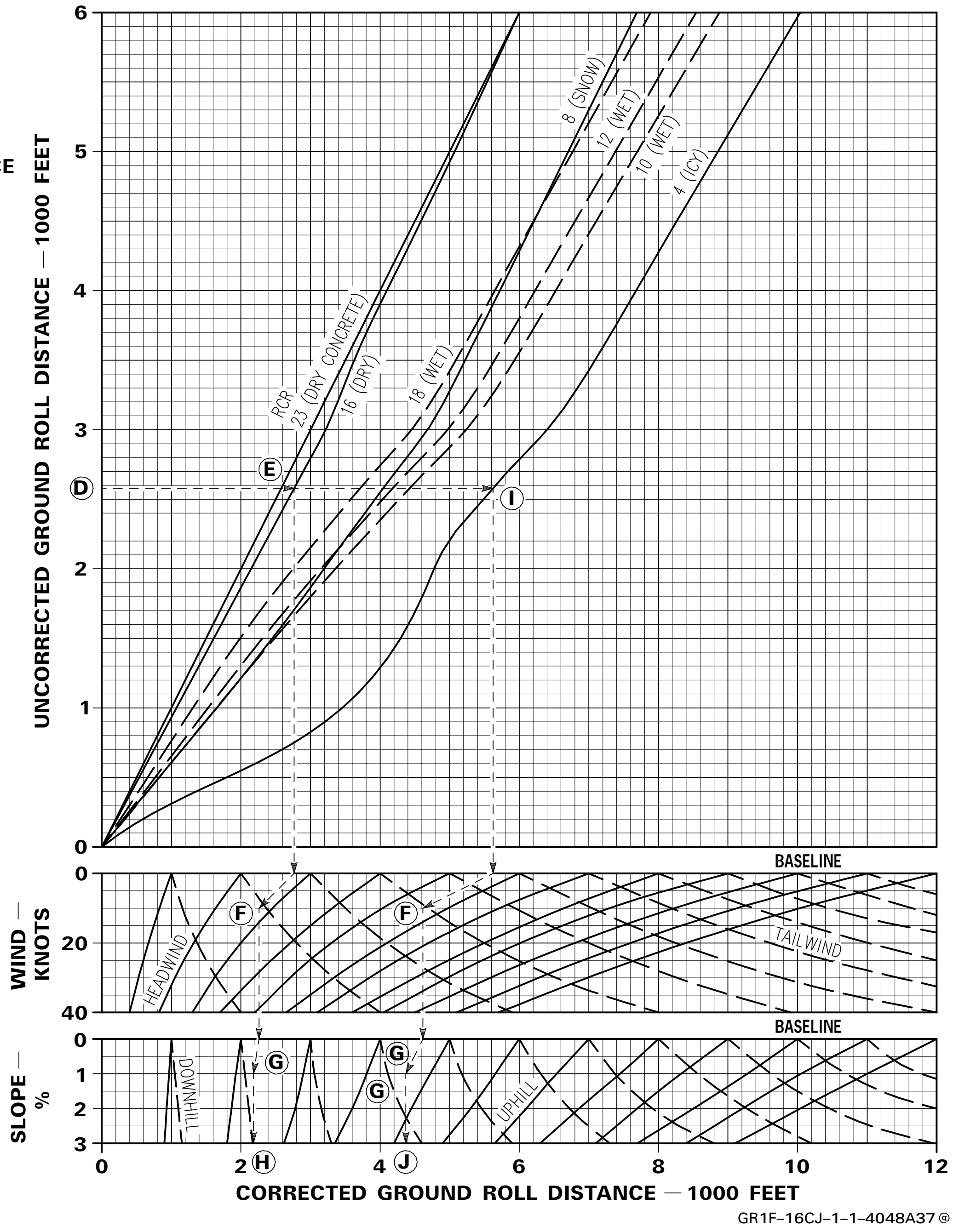


Figure B7-2. (Sheet 6)

PART 8 – COMBAT

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LIST OF CHARTS

COMBAT CEILINGS AND OPTIMUM CRUISE ALTITUDE

Combat ceiling and optimum cruise altitude data is shown in figure B8-1. All data is based on use of optimum cruise mach number. Correction factors to adjust MIL combat ceiling to cruise or service ceilings are given on the chart.

REFER TO FIGURE B8-1.

For standard day, enter upper portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read cruise altitude (C). Enter lower portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read combat ceiling (D).

For MIL cruise ceiling, add 650 feet to MIL combat ceiling. For MIL service ceiling, add 1300 feet to MIL combat ceiling.

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Drag index	=	150
C.	Cruise altitude	=	34,900 feet
D.	MIL combat ceiling (500 fpm)	=	35,550 feet
•	MIL cruise ceiling (300 fpm)	=	36,200 feet
•	MIL service ceiling (100 fpm)	=	36,850 feet

LEVEL FLIGHT COMBAT SPEEDS AND ALTITUDES

Combat speed and altitude envelopes are shown in figure B8-2 (sheets 1 through 4) for MIL and MAX AB. All data shown reflects speed/altitude conditions where 500 fpm climb potential remains at the specified thrust setting.

REFER TO FIGURE B8-2, SHEET 1.

Enter the plot labeled with the appropriate drag index with altitude (A), proceed to the right to GW (B), and then down to read mach number (C). Reverse this process to find maximum altitude.

SAMPLE PROBLEM.

•	Drag index	=	50
A.	Altitude	=	40,000 feet
B.	GW	=	24,000 pounds
C.	Maximum mach:		
	• MIL	=	0.95
	• MAX AB	=	1.9

For nonstandard day, use the adjustments noted in figure B8-3 at or below 30,000 feet. For altitudes above 30,000 feet, nonstandard day operations are not shown since the altitude as well as mach number is affected by temperature changes.

LEVEL FLIGHT COMBAT SPEED

Maximum speed capabilities for MIL and MAX AB during level flight are provided as indicated airspeed in tabular form in figure B8-3. The data is presented as a function of altitude and drag index with temperature effects shown as correction increments. No GW effects are shown because speed capability is not significantly affected by weight in the altitude range shown.

REFER TO FIGURE B8-3.

Enter the table with thrust, altitude, and drag index and read indicated airspeed at standard day temperature. The resulting value is the maximum attainable airspeed in level flight under the given conditions. Temperature corrections are found in the bottom half of figure B8-3. Enter the table with altitude and drag index and read the temperature correction. The correction increments are given for a 20°C deviation from standard. For other temperature deviations, determine ratio of the table values.

SAMPLE PROBLEM.

•	Thrust	=	MIL
•	Altitude	=	15,000 feet
•	Drag index	=	100
•	Maximum indicated airspeed, standard day	=	495 knots
•	Standard day temperature	=	–15°C
•	Ambient temperature	=	–10°C
•	Temperature deviation	=	5°C hot
•	Indicated airspeed for +20°C temperature deviation at 15,000 feet and DI = 100	=	–12 knots
•	Maximum indicated airspeed for ambient temperature of –10°C	=	495 – (12 × 5/20) = 492 knots

FUEL FLOW (MIL AND MAX AB)

Fuel flow data for MIL and MAX AB thrust is given in figure B8-4. The data may be used to estimate fuel consumption at combat conditions. For instance, a MAX AB turn at 1.6 mach and 30,000 feet altitude consumes 56,200 pounds of fuel per hour or (56,200 ÷ 60) = 937 pounds of fuel every minute.

MIL ACCELERATION

MIL acceleration performance from 200 KIAS to combat speed is given in figures B8-5, B8-6, B8-7, and B8-8 for sea level and 10,000, 20,000, and 30,000 feet altitude, respectively. The data in these charts covers the subsonic and transonic flight region for drag indexes up to 250 and is presented as a function of altitude, drag index, and GW with temperature effects shown as factors.

REFER TO FIGURE B8-5, SHEET 1.

To find the time, distance, and fuel consumed in a constant altitude acceleration, enter the table with drag index, GW, and initial airspeed. Then read time/distance/fuel consumed. Next, enter the table with the final airspeed and read time/distance/fuel consumed. The difference between the two sets of data is then the time/distance/fuel consumed for the acceleration. Temperature effects factors are found on the right side of each chart. Multiply the standard day time/distance/fuel consumed initial and final conditions by their respective factors to get initial and final

conditions for ±20°C deviation from standard. To compute the time/distance/fuel consumed for other temperatures, simply ratio the difference between standard day values and ±20°C values for the particular temperature deviation. The difference between initial and final conditions is the time/distance/fuel consumed in acceleration for nonstandard day temperature.

SAMPLE PROBLEM.

A.	Altitude	=	SL
B.	Drag index	=	0
C.	GW	=	20,000 pounds
D.	Standard day temperature	=	15°C
E.	Ambient temperature	=	22°C
F.	Temperature deviation	=	7°C hot
G.	Initial airspeed	=	300 KIAS
H.	Final airspeed	=	600 KIAS

FIND FUEL CONSUMED:

I.	Fuel at initial condition (STD)	=	28 pounds
J.	Temperature effect factor at +20°C	=	1.08
K.	Fuel at initial condition is 1.08 × 28 for +20°C	=	30.2 pounds
L.	Fuel at initial condition for 7°C is 28 + $(2.2 \times \frac{7}{20})$	=	28.8 pounds
M.	Fuel at final conditions (STD)	=	143 pounds
N.	Temperature effect factor at +20°C	=	1.19
O.	Fuel at final condition is 1.19 × 143 for +20°C	=	170.2 pounds
P.	Fuel at initial condition for 7°C is 143 + $(27.2 \times \frac{7}{20})$	=	152.5 pounds
Q.	Fuel consumed (152.5 – 28.8)	=	123.7 pounds

The above method also applies to computing time and range for the acceleration.

MAX AB ACCELERATION

MAX AB acceleration performance from 200 KIAS to combat speed is given in figures B8-9, B8-10, B8-11, B8-12, and B8-13 for sea level and 10,000, 20,000, 30,000, and 40,000 feet altitude, respectively. The data in these charts covers the subsonic, transonic, and supersonic flight region for drag indexes up to 250 and is presented as a function of altitude, drag index, and GW with temperature effects shown as factors. Refer to MIL ACCELERATION for procedures.

TURN PERFORMANCE

Figures B8-14 through B8-64 contain constant altitude and drag index turn performance data plotted versus mach for lines of constant energy rate (Ps). Lines of load factor and turn radius are superimposed on each chart. Correction insets containing GW and temperature effects are also included on each chart. Altitudes range from sea level to 30,000 feet for MIL standard day thrust and sea level to 50,000 feet for MAX AB standard day thrust. Both MIL and MAX AB thrust charts contain drag indexes of 0 through 200 and varying GW's. The boundaries of the data are defined by the CAT I or CAT III AOA limiters, load factor limits, maximum aft stick limits, maximum airspeed (Ps = 0 at 1g), and limit airspeed. Within these boundaries, the data defines how much Ps remains at any load factor, mach, or turn rate. On figure B8-37, for instance, the Ps lines show that 0.9 mach is an ideal speed for maneuvering and increasing energy (climbing) simultaneously. At 9g, Ps is almost 600 fps or an instantaneous rate of climb of almost 36,000 fpm. At the same load factor, however, turn radius can be reduced by making the turn at 0.70 mach while still maintaining airspeed and altitude (Ps = 0). The quickest turn occurs at about 8g, 0.54 mach. Note, however, Ps is less than 0 (Ps < –500 fps) indicating either speed or altitude must be decreased to maintain the turn. In this case, the turn condition is limited by the CAT I limiter. Speed decays at constant altitude, and load factor decreases along the CAT I limit line until Ps = 0 is reached at about 3.5g, 0.33 mach. The effects of varying GW's or nonstandard temperatures may also be included, as in the example below. A close study of the turn performance charts assists in forming a picture of the interrelationships between maneuverability, speed, altitude, energy rate, etc.

REFER TO FIGURE B8-37.

Enter the chart with mach number (A), proceed vertically to desired Ps (B), and proceed horizontally to read turn rate (C). Enter GW Effect inset at desired GW (D), proceed vertically to mach number (A), and then left horizontally to read Δ turn rate (E). Enter Temperature Effect inset at temperature deviation from standard day value (F), proceed vertically to mach number (A), and then horizontally to read Δ turn rate (G). Combine (E), (G), and (C) to obtain a corrected turn rate (H). With the corrected turn rate, proceed horizontally back to mach number (A) to define the new location of the Ps line. Read the turn radius (I). Enter Radius Temperature Effect inset at standard temperature deviation value (F); proceed vertically to line and then horizontally to read turn radius factor (J). Multiply turn radius and turn radius factor to obtain corrected turn radius (K).

NOTE

The accuracy of GW and temperature corrections to turn rate is considerably degraded when large (steep) Ps line slopes are encountered.

SAMPLE PROBLEM.

A.	Mach number	=	0.60
B.	Ps	=	0 (level turn)
C.	Turn rate	=	21.1 degrees/second
D.	GW	=	24,000 pounds
E.	Δ Turn rate	=	–2.2 degrees/second
F.	Temp dev from std day	=	+20°C
G.	Δ Turn rate	=	–2.6 degrees/second
H.	Corrected turn rate = 21.1 – 2.2 – 2.6	=	16.3 degrees/second (at Ps = 0)
I.	Turn radius	=	2453 feet
J.	Turn radius factor	=	1.069
K.	Corrected turn radius 2453 feet × 1.069	=	2622 feet

DECELERATION

Level 1g deceleration performance is shown in figure B8-65 for 20,000, 30,000, and 40,000 feet altitude, respectively. Sufficient drag index lines are provided to cover most supersonic loadings plus a line representing speedbrakes open at aircraft drag index = 0.

REFER TO FIGURE B8-65, SHEET 1.

Enter top portion of chart with initial mach number (A), proceed vertically to drag index (B), proceed horizontally to the right to weight baseline and follow guidelines to GW (C), and finally proceed horizontally to the right to read fuel consumed (D). Repeat this process in the remaining portions of the chart to determine distance (E) and time (F) to decelerate. Repeat the entire procedure substituting final mach for initial mach and subtract the result from the first set of data to obtain fuel used, distance, and time to decelerate from initial to final mach.

SAMPLE PROBLEM (20,000 FEET).

A.	Initial mach	=	1.5
B.	Drag index*	=	20
C.	GW	=	22,000 pounds
D.	Fuel used	=	58 pounds
E.	Distance	=	14.2 nm
F.	Time	=	1.6 minutes

* Example drag index

The above data is for a deceleration from 1.5 to 0.6 mach. If the deceleration is stopped at 0.7 mach:

G.	Fuel used	=	58 – 8 = 50 pounds
H.	Distance	=	14.2 – 2.7 = 11.5 nm
I.	Time	=	1.6 – 0.4 = 1.2 minute

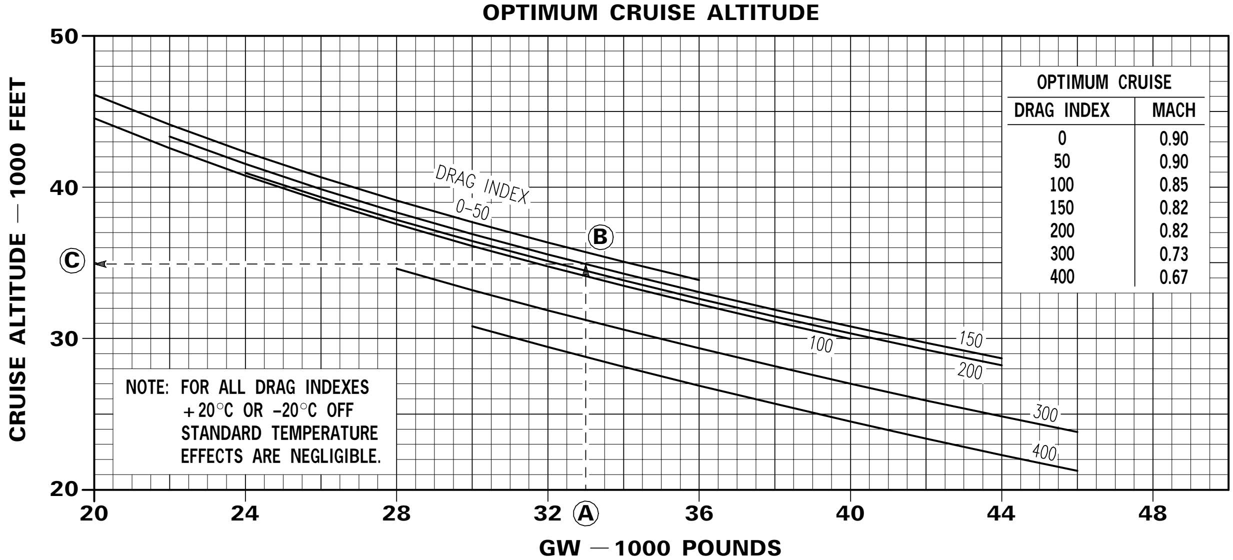
Combat Ceilings and Optimum Cruise Altitude

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONDITIONS:

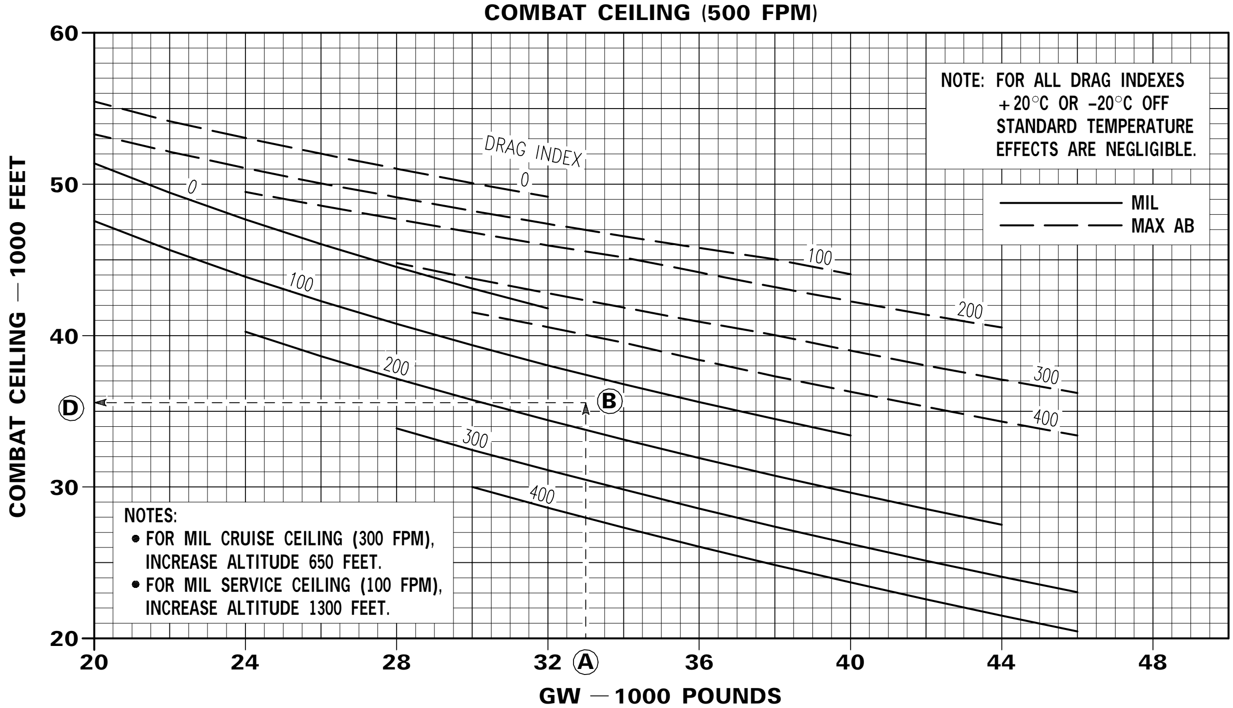
- STANDARD DAY
- OPTIMUM CRUISE MACH NUMBER

OPTIMUM CRUISE ALTITUDE



OPTIMUM CRUISE	
DRAG INDEX	MACH
0	0.90
50	0.90
100	0.85
150	0.82
200	0.82
300	0.73
400	0.67

COMBAT CEILING (500 FPM)



1F–16CJ–1–1–4046A@

Figure B8-1.

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

NOTES:

- FOR NONSTANDARD DAY, REFER TO FIGURE B8–3 TO ADJUST AIR–SPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIR–SPEED LIMITATIONS.

CONDITIONS:

- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST

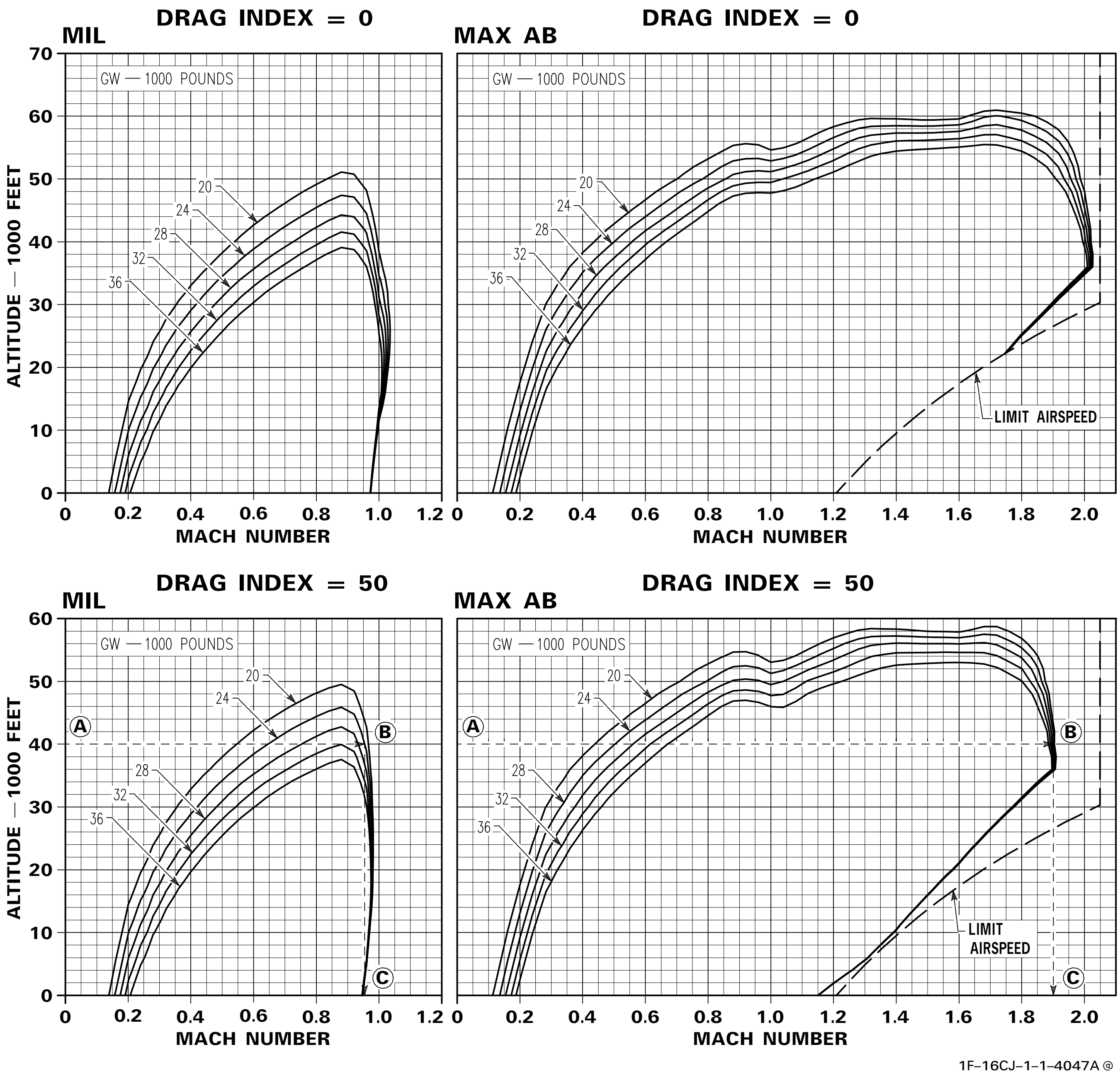


Figure B8-2. (Sheet 1)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

NOTES:
- FOR NONSTANDARD DAY, REFER TO FIGURE B8–3 TO ADJUST AIRSPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

CONDITIONS:
- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST

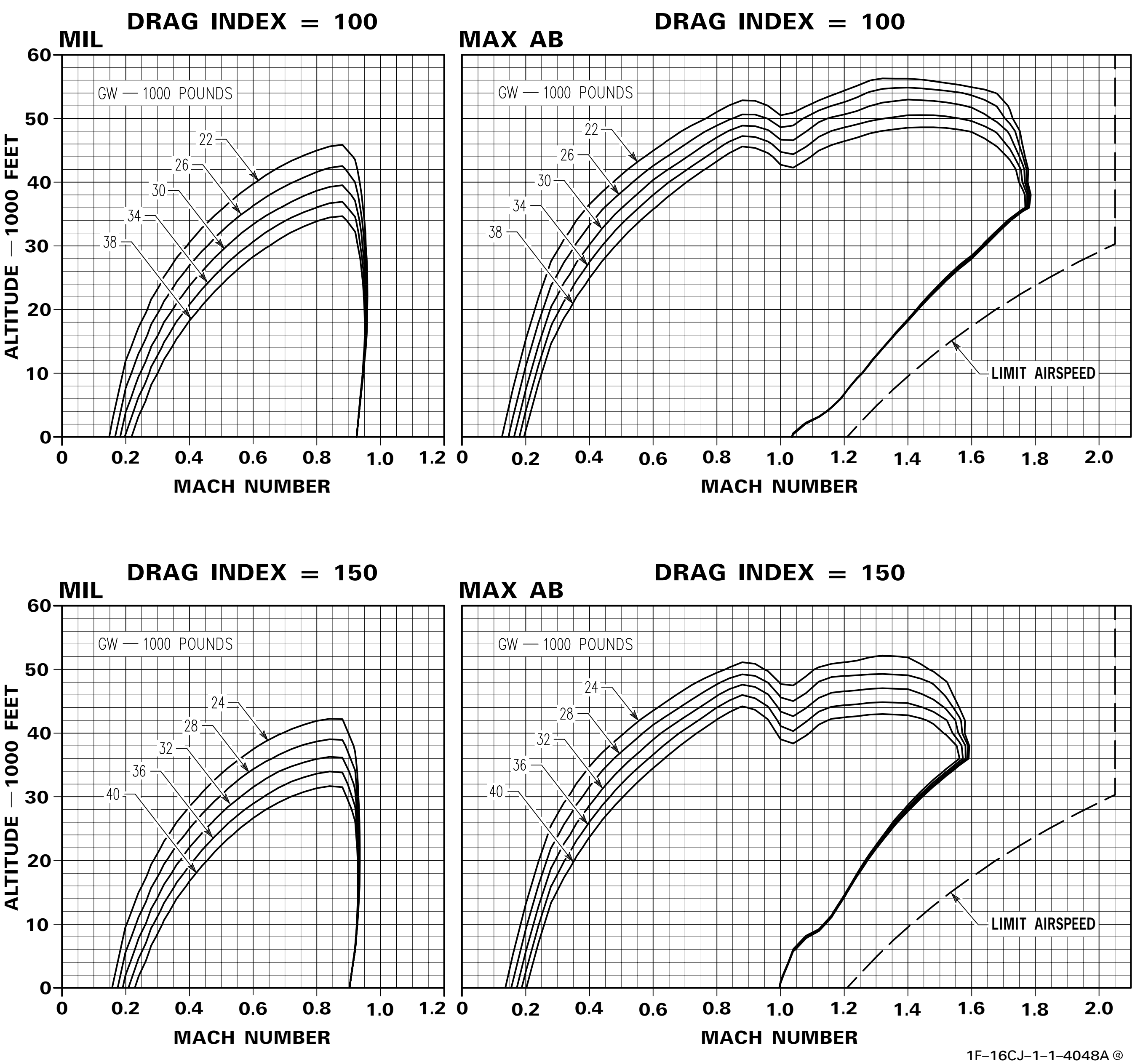


Figure B8-2. (Sheet 2)

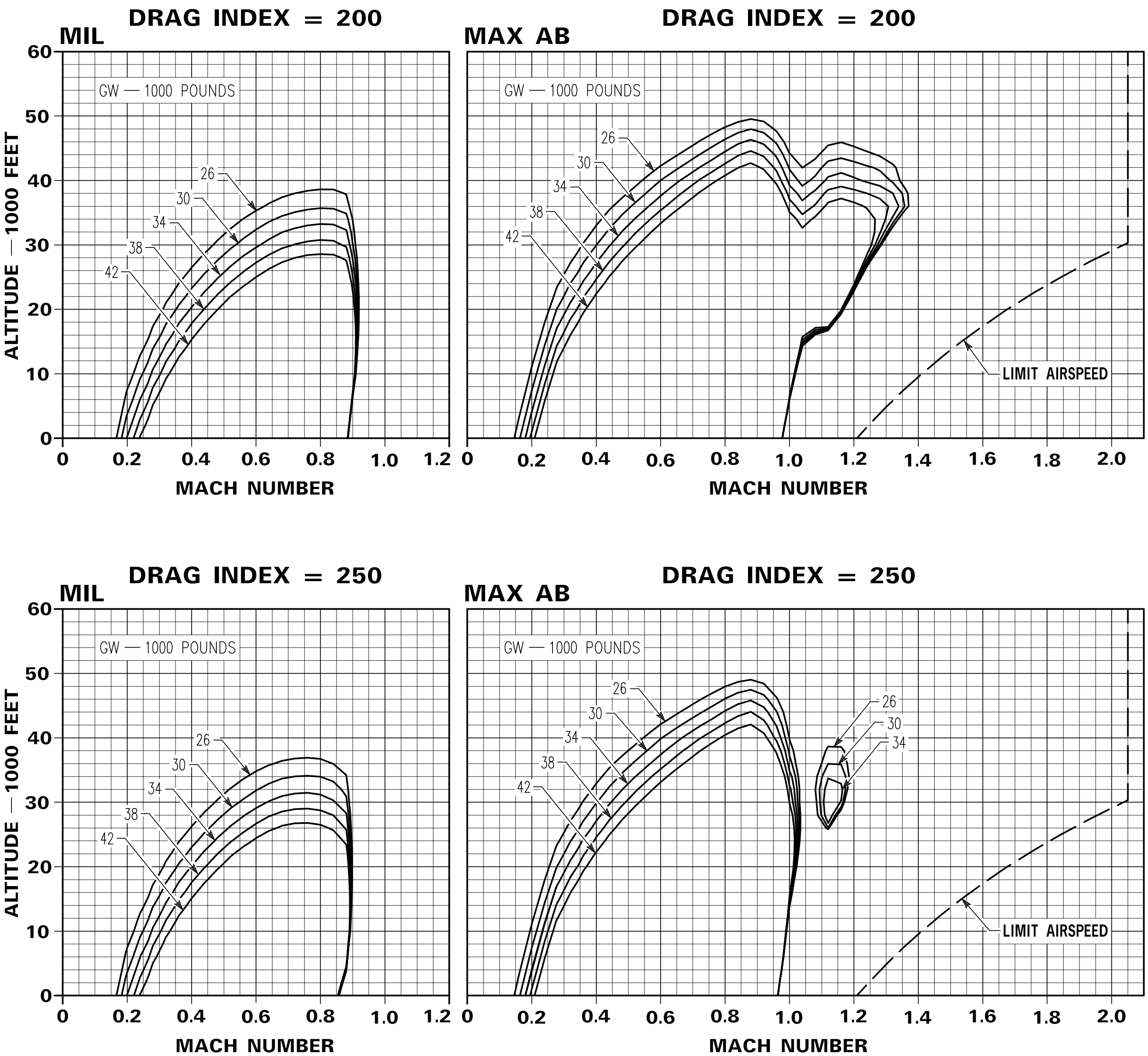
Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS FLIGHT TEST

ENGINE F110–GE–129

NOTES:
- FOR NONSTANDARD DAY, REFER TO FIGURE B8–3 TO ADJUST AIRSPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

CONDITIONS:
- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST



1F–16CJ–1–1–4049A @

Figure B8-2. (Sheet 3)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

NOTES:
- **FOR NONSTANDARD DAY, REFER TO FIGURE B8–3 TO ADJUST AIR–SPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.**
- **REFER TO SECTION V FOR AIRSPEED LIMITATIONS.**

CONDITIONS:
- **STANDARD DAY**
- **1G**
- **500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST**

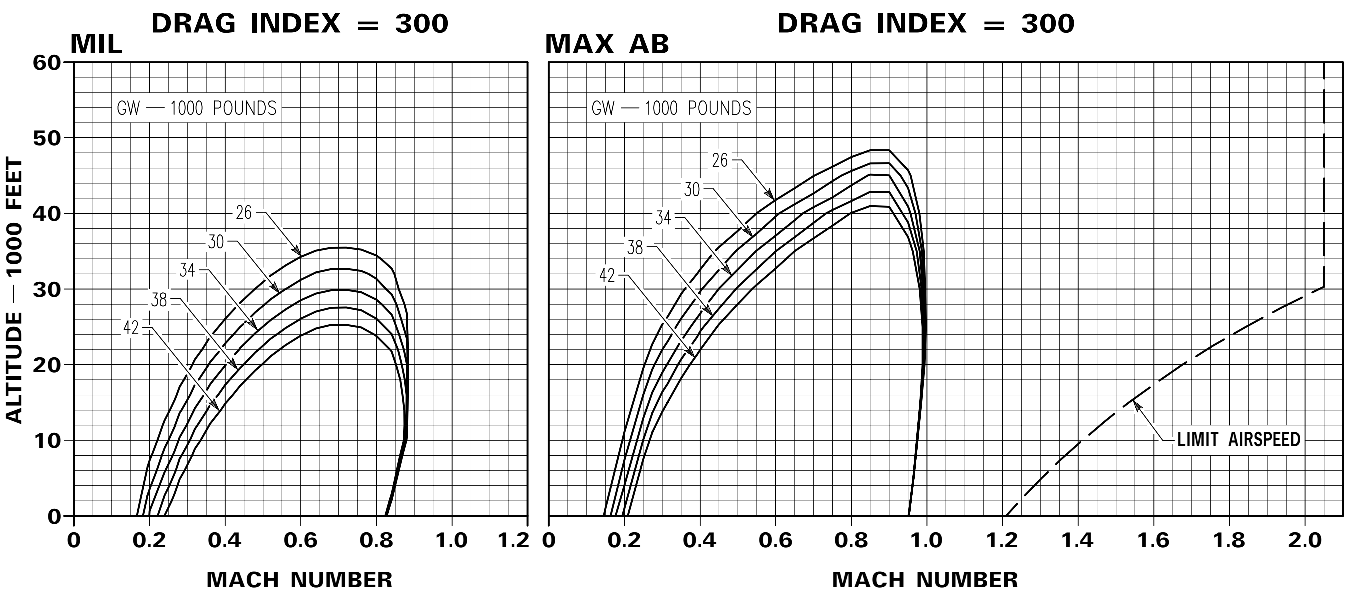


Figure B8-2. (Sheet 4)

Level Flight Combat Speed (MIL/MAX AB)

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **ALL GW'S**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

MIL

STANDARD TEMPERATURE °C	ALTITUDE FEET	INDICATED AIRSPEED – KNOTS						
		DRAG INDEX 0	50	100	150	200	250	300
+15	SL	644	629	613	600	587	567	547
+5	5,000	603	588	574	562	553	539	522
−5	10,000	563	548	536	524	514	507	493
−15	15,000	527	507	495	483	473	466	453
−25	20,000		464	452	441	432	425	
−35	25,000		421	410	398			
−44	30,000		377					

∆ INDICATED AIRSPEED – KNOTS

*	SL	1/-15	2/-19	2/-16	3/-27	7/-38	12/-40	15/-42
	5,000	8/-13	7/-14	8/-15	7/-16	6/-29	12/-36	16/-40
	10,000	12/-14	6/-12	5/-15	5/-14	5/-18	4/-30	9/-36
	15,000	14/-18	4/-11	3/-12	3/-11	3/-9	2/-18	4/-23
	20,000		1/-7	1/-7	0/-6	0/-5	0/-9	
	25,000		0/-4	-1/-3	0/-2			
	30,000		0/-1					

MAX AB

STANDARD TEMPERATURE °C	ALTITUDE FEET	INDICATED AIRSPEED – KNOTS						
		DRAG INDEX 0	50	100	150	200	250	300
+15	SL	**800	763	686	659	647	638	630
+5	5,000	**800	793	723	636	612	601	592
−5	10,000	**800	790	716	650	576	561	552
−15	15,000	**800	776	705	635	544	521	512
−25	20,000	**800	758	691	614	562	484	471
−35	25,000	783	734	675	595	537	443	429
−44	30,000	752	708	657	579			386

∆ INDICATED AIRSPEED – KNOTS

*	SL	**0/-28	-14/-76	-7/-29	-3/-15	-2/-13	-2/-14	-2/-15
	5,000	**0/-26	-9/-104	-11/-96	2/-29	3/-16	3/-15	4/-14
	10,000	**0/-27	**10/-103	24/-105	34/-80	57/-20	17/-14	11/-13
	15,000	**0/-40	**24/-95	61/-84	48/-98	86/-27	20/-13	7/-12
	20,000	**0/-63	**42/-88	80/-88	56/-73	47/-83	80/-16	3/-10
	25,000	**17/-72	**66/-84	79/-89	66/-71	57/-94	83/-14	1/-8
	30,000	**48/-72	80/-79	86/-90	82/-81			0/-4

*TEMPERATURE DEVIATION FROM STANDARD = −20°C/+20°C.
**LIMIT AIRSPEED

Figure B8-3.

Fuel Flow (MIL/MAX AB)

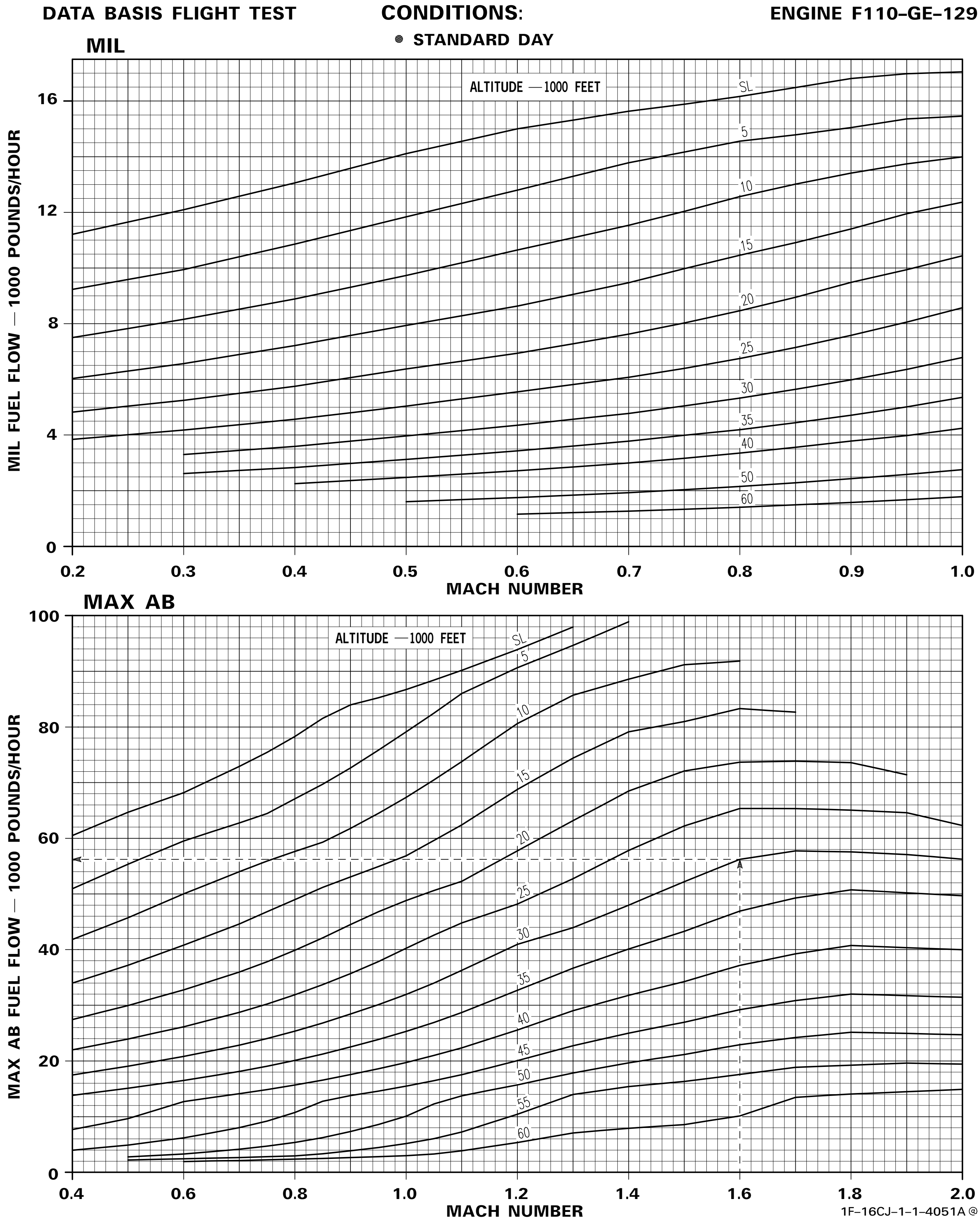


Figure B8-4.

MIL Accelerations — Sea Level

DATA BASIS FLIGHT TEST

CONDITIONS:

- **STANDARD DAY TEMPERATURE (15°C)**

ENGINE F110-GE-129

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.2/14	5/0.3/17	6/0.4/20	7/0.4/24	8/0.5/29	1.10/1.14/1.08	0.96/0.92/0.92
	300	0.45	8/0.5/28	10/0.7/34	11/0.8/41	14/0.9/49	16/1.1/57	1.13/1.17/1.08	0.95/0.92/0.92
	350	0.53	12/0.9/43	14/1.1/52	17/1.3/62	20/1.5/74	24/1.8/86	1.16/1.21/1.09	0.95/0.91/0.92
	400	0.60	16/1.3/59	19/1.6/72	23/1.9/85	27/2.2/100	31/2.5/116	1.19/1.24/1.10	0.94/0.90/0.92
	450	0.68	20/1.8/76	24/2.2/93	28/2.6/110	33/3.0/129	39/3.5/149	1.22/1.28/1.11	0.93/0.89/0.92
	500	0.76	24/2.4/95	29/2.9/116	35/3.4/137	40/3.9/160	47/4.5/185	1.25/1.31/1.13	0.91/0.87/0.92
	550	0.83	29/3.1/117	35/3.7/142	42/4.4/168	48/5.1/196	56/5.9/225	1.28/1.36/1.15	0.90/0.85/0.91
	600	0.91	35/4.0/143	42/4.8/174	50/5.7/205	57/6.6/238	66/7.5/272	1.33/1.43/1.19	0.89/0.85/0.90
	CMBT SPD KIAS/MACH		52/7.0/225	62/8.3/268	72/9.6/311	82/10.9/355	93/12.3/401	1.31/1.36/1.14	0.91/0.87/0.91
			644/0.97	644/0.97	644/0.97	644/0.97	643/0.97	0.98/0.98	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.2/14	5/0.3/17	6/0.4/21	7/0.4/25	9/05/30	1.10/1.14/1.08	0.96/0.92/0.92
	300	0.45	8/0.5/28	10/0.7/35	12/0.8/42	14/1.0/50	16/1.1/59	1.13/1.17/1.08	0.95/0.92/0.92
	350	0.53	12/0.9/44	15/1.1/54	17/1.3/64	21/1.6/75	24/1.8/88	1.16/1.21/1.09	0.95/0.91/0.92
	400	0.60	16/1.3/61	20/1.6/74	23/1.9/88	27/2.3/103	32/2.6/120	1.20/1.25/1.11	0.94/0.90/0.92
	450	0.68	20/1.9/79	25/2.3/96	30/2.7/114	35/3.1/134	40/3.6/155	1.23/1.29/1.12	0.93/0.89/0.92
	500	0.76	25/2.5/100	31/3.0/122	36/3.6/145	43/4.2/169	49/4.8/194	1.27/1.34/1.15	0.91/0.86/0.91
	550	0.83	31/3.3/126	38/4.0/153	44/4.8/181	52/5.5/210	60/6.3/241	1.32/1.40/1.18	0.89/0.84/0.90
	600	0.91	38/4.5/159	46/5.4/193	55/6.4/227	63/7.4/263	73/8.4/302	1.44/1.56/1.28	0.88/0.83/0.89
	CMBT SPD KIAS/MACH		57/7.7/246	67/9.1/293	78/10.5/340	90/11.9/388	101/13.4/437	1.23/1.25/1.07	0.87/0.83/0.87
			630/0.95	629/0.95	629/0.95	629/0.95	629/0.95	0.97/0.97	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.3/16	5/0.3/19	7/0.4/23	8/0.5/28	10/0.6/33	1.11/1.15/1.08	0.96/0.92/0.92
	300	0.45	9/0.6/32	11/0.8/39	13/0.9/46	15/1.1/55	18/1.3/65	1.13/1.18/1.09	0.95/0.92/0.92
	350	0.53	14/1.0/50	16/1.2/60	19/1.5/71	23/1.7/84	27/2.0/98	1.17/1.22/1.10	0.95/0.91/0.92
	400	0.60	18/1.5/69	22/1.8/83	26/2.2/98	30/2.5/115	35/2.9/133	1.21/1.26/1.12	0.94/0.90/0.92
	450	0.68	24/2.1/91	28/2.6/110	33/3.0/129	39/3.5/150	45/4.0/173	1.25/1.31/1.14	0.92/0.88/0.92
	500	0.76	30/2.9/118	35/3.5/141	42/4.1/166	48/4.8/192	56/5.5/220	1.30/1.38/1.17	0.90/0.85/0.90
	550	0.83	37/4.0/151	44/4.8/181	52/5.6/212	60/6.5/244	69/7.4/280	1.38/1.48/1.24	0.88/0.83/0.89
	600	0.91	48/5.8/203	57/6.9/242	67/8.1/282	77/9.3/325	88/10.5/370		0.86/0.81/0.87
	CMBT SPD KIAS/MACH		63/8.3/271	74/9.7/318	85/11.1/366	97/12.5/415	109/14.0/466	1.40/1.47/1.23	0.88/0.85/0.89
			613/0.93	613/0.93	613/0.93	613/0.93	613/0.93	0.97/0.97	1.00/1.00

Figure B8-5. (Sheet 1)

MIL Accelerations — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/17	6/0.4/21	7/0.5/26	9/0.6/31	11/0.7/37	1.11/1.15/1.08	0.96/0.92/0.92
	300	0.45	10/0.7/36	12/0.8/43	14/1.0/52	17/1.2/61	20/1.4/72	1.14/1.18/1.09	0.95/0.92/0.92
	350	0.53	15/1.2/56	18/1.4/67	22/1.6/79	25/1.9/93	30/2.2/109	1.18/1.23/1.11	0.95/0.91/0.92
	400	0.60	21/1.7/79	25/2.1/94	29/2.4/110	34/2.8/128	39/3.3/149	1.22/1.28/1.13	0.94/0.90/0.92
	450	0.68	27/2.5/105	32/2.9/125	38/3.4/146	44/4.0/169	50/4.5/195	1.27/1.34/1.16	0.92/0.88/0.91
	500	0.76	34/3.5/137	41/4.1/163	48/4.8/190	55/5.5/219	63/6.3/251	1.34/1.43/1.21	0.89/0.85/0.90
	550	0.83	45/4.9/183	53/5.8/216	61/6.7/251	70/7.7/288	81/8.8/329	1.50/1.64/1.35	0.86/0.81/0.87
	600	0.91	69/8.9/295	81/10.4/346	93/11.9/399	106/13.6/455	121/15.3/515		0.79/0.73/0.79
	CMBT SPD KIAS/MACH		72/9.4/311	84/11.0/363	97/12.5/416	110/14.1/471	124/15.8/528	1.47/1.53/1.29	0.85/0.81/0.86
			601/0.91	601/0.91	601/0.91	601/0.91	601/0.91	0.96/0.96	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	6/0.4/20	7/0.4/24	8/0.5/29	10/0.6/34	12/0.8/42	1.11/1.15/1.09	0.96/0.92/0.92
	300	0.45	11/0.8/40	14/0.9/48	16/1.1/57	19/1.3/68	23/1.6/81	1.14/1.19/1.10	0.95/0.92/0.92
	350	0.53	17/1.3/63	20/1.6/75	24/1.8/88	28/2.1/103	33/2.5/121	1.19/1.24/1.11	0.95/0.91/0.92
	400	0.60	24/2.0/89	28/2.3/105	33/2.7/123	38/3.2/143	44/3.6/166	1.23/1.29/1.14	0.93/0.90/0.92
	450	0.68	31/2.8/120	36/3.3/142	42/3.9/165	49/4.5/190	57/5.1/219	1.29/1.37/1.18	0.92/0.87/0.91
	500	0.76	40/4.1/161	47/4.8/189	55/5.5/220	63/6.3/252	73/7.2/289	1.40/1.51/1.27	0.88/0.83/0.89
	550	0.83	55/6.2/226	64/7.2/264	74/8.3/305	85/9.5/349	97/10.8/397		0.83/0.78/0.84
	CMBT SPD KIAS/MACH		92/12.2/400	106/13.9/458	120/15.7/517	135/17.5/580	151/19.4/647	1.21/1.20/1.05	0.84/0.80/0.85
			588/0.89	588/0.89	588/0.89	587/0.89	587/0.89	0.93/0.93	1.01/1.01

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	6/0.4/20	7/0.4/24	8/0.5/29	10/0.6/35	12/0.8/43	1.12/1.16/1.09	0.96/0.92/0.92
	300	0.45	12/0.8/41	14/1.0/49	16/1.1/59	19/1.3/69	23/1.6/83	1.15/1.19/1.10	0.95/0.92/0.92
	350	0.53	18/1.4/65	21/1.6/77	25/1.9/91	29/2.2/106	34/2.6/125	1.19/1.24/1.12	0.95/0.91/0.92
	400	0.60	24/2.1/93	29/2.4/109	34/2.8/128	39/3.3/149	46/3.8/173	1.25/1.31/1.15	0.93/0.90/0.92
	450	0.68	32/3.0/127	38/3.5/149	45/4.1/174	52/4.7/201	60/5.4/232	1.32/1.41/1.21	0.91/0.87/0.90
	500	0.76	44/4.5/175	51/5.3/206	59/6.1/239	68/7.0/275	79/8.0/315	1.51/1.64/1.37	0.87/0.82/0.87
	550	0.83	65/7.7/273	76/8.9/318	88/10.3/367	101/11.7/420	115/13.3/479		0.78/0.72/0.79
	CMBT SPD KIAS/MACH		98/12.8/424	112/14.5/480	126/16.2/541	141/18.0/603	157/19.8/668	1.16/1.13/1.00	0.86/0.83/0.88
			568/0.86	568/0.86	568/0.86	567/0.86	566/0.86	0.93/0.93	1.02/1.02

Figure B8-5. (Sheet 2)

MIL Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/17	8/0.6/21	10/0.7/26	13/0.9/32	16/1.2/40	1.06/1.10/1.08	0.97/0.93/0.91
	300	0.54	13/1.0/34	16/1.3/42	20/1.6/52	24/1.9/63	30/2.4/77	1.07/1.11/1.08	0.97/0.93/0.92
	350	0.63	19/1.7/52	24/2.1/64	29/2.5/78	35/3.0/94	42/3.6/113	1.08/1.12/1.09	0.97/0.93/0.92
	400	0.72	26/2.4/72	32/3.0/88	38/3.6/106	45/4.3/127	54/5.1/151	1.10/1.15/1.09	0.96/0.93/0.92
	450	0.80	32/3.3/93	39/4.0/114	47/4.8/137	56/5.7/162	66/6.7/191	1.14/1.20/1.11	0.96/0.92/0.92
	500	0.89	38/4.3/116	47/5.2/142	56/6.2/170	66/7.3/200	78/8.5/234	1.18/1.26/1.13	0.95/0.91/0.91
	550	0.97	48/5.8/151	58/7.1/184	69/8.4/220	82/9.8/258	96/11.4/300		0.92/0.87/0.89
	CMBT SPD KIAS/MACH		64/8.7/214	76/10.2/255	89/11.9/296	103/13.5/340	118/15.3/387	1.12/1.15/1.02	1.10/1.11/1.14
			564/1.00	564/1.00	563/1.00	563/0.99	562/0.99	0.97/0.98	1.02/1.02

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/17	9/0.6/21	11/0.8/26	13/1.0/33	17/1.2/41	1.06/1.10/1.08	0.97/0.93/0.91
	300	0.54	13/1.1/35	17/1.3/43	20/1.6/53	25/2.0/65	31/2.4/79	1.07/1.11/1.08	0.97/0.93/0.92
	350	0.63	20/1.8/54	25/2.2/67	30/2.6/81	36/3.2/98	44/3.8/118	1.08/1.13/1.09	0.97/0.93/0.92
	400	0.72	27/2.6/75	33/3.1/92	40/3.8/111	48/4.5/133	57/5.4/159	1.11/1.16/1.10	0.96/0.93/0.92
	450	0.80	34/3.5/99	41/4.3/121	50/5.1/145	59/6.1/172	70/7.1/203	1.15/1.21/1.12	0.96/0.92/0.92
	500	0.89	41/4.6/126	50/5.6/154	60/6.7/183	71/7.9/216	84/9.2/253	1.21/1.29/1.16	0.94/0.90/0.91
	CMBT SPD KIAS/MACH		64/8.4/211	76/9.9/251	89/11.6/293	103/13.2/338	119/15.1/386	1.23/1.30/1.13	0.95/0.91/0.95
			549/0.97	548/0.97	548/0.97	548/0.97	547/0.97	0.98/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	8/0.6/19	10/0.7/24	12/0.9/30	15/1.1/38	20/1.4/49	1.06/1.10/1.08	0.97/0.93/0.91
	300	0.54	15/1.2/40	19/1.5/49	23/1.9/60	29/2.3/74	35/2.8/91	1.07/1.11/1.09	0.97/0.93/0.92
	350	0.63	23/2.0/63	28/2.5/77	34/3.0/93	41/3.6/112	50/4.4/135	1.09/1.13/1.09	0.97/0.93/0.92
	400	0.72	31/3.0/88	38/3.6/107	46/4.4/128	55/5.2/153	66/6.2/183	1.12/1.17/1.11	0.96/0.93/0.92
	450	0.80	40/4.2/117	48/5.0/141	58/6.0/169	68/7.0/199	81/8.3/236	1.17/1.23/1.14	0.96/0.92/0.92
	500	0.89	50/5.6/152	60/6.8/184	71/8.0/218	84/9.4/256	99/11.0/300	1.26/1.36/1.21	0.94/0.90/0.91
	CMBT SPD KIAS/MACH		75/9.8/248	89/11.5/292	103/13.3/338	119/15.1/386	136/17.1/440	1.16/1.20/1.06	0.91/0.87/0.90
			537/0.95	537/0.95	536/0.95	536/0.95	535/0.95	0.97/0.97	1.01/1.01

Figure B8-6. (Sheet 1)

MIL Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	9/0.6/22	11/0.8/28	14/1.0/35	18/1.3/44	23/1.7/58	1.06/1.10/1.09	0.97/0.93/0.91
	300	0.54	18/1.4/46	22/1.7/56	27/2.1/69	33/2.6/85	42/3.3/107	1.07/1.11/1.09	0.97/0.93/0.92
	350	0.63	27/2.4/72	33/2.9/88	39/3.4/106	48/4.1/128	59/5.1/157	1.09/1.13/1.10	0.97/0.93/0.92
	400	0.72	36/3.5/102	44/4.2/124	53/5.0/148	63/6.0/176	76/7.2/213	1.13/1.18/1.12	0.96/0.93/0.92
	450	0.80	47/4.9/138	57/5.9/166	67/7.0/197	80/8.3/233	96/9.8/278	1.19/1.27/1.16	0.95/0.92/0.91
	500	0.89	60/7.0/187	72/8.3/223	86/9.8/263	101/11.4/308	119/13.3/363	1.36/1.49/1.31	0.93/0.89/0.90
	CMBT SPD KIAS/MACH		82/10.5/269	97/12.3/315	112/14.1/363	129/16.0/416	150/18.3/477	1.26/1.32/1.17	0.95/0.92/0.95
			524/0.93	524/0.93	524/0.93	523/0.93	523/0.93	0.98/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	10/0.7/25	13/0.9/32	16/1.2/40	21/1.5/52	29/2.1/71	1.06/1.10/1.09	0.97/0.93/0.91
	300	0.54	20/1.6/53	25/2.0/64	31/2.4/79	38/3.0/99	50/3.9/128	1.07/1.12/1.09	0.97/0.93/0.92
	350	0.63	31/2.7/83	37/3.3/101	45/3.9/122	55/4.8/148	69/5.9/185	1.10/1.14/1.10	0.97/0.93/0.92
	400	0.72	42/4.1/119	51/4.9/143	61/5.8/171	74/7.0/206	90/8.5/251	1.14/1.19/1.13	0.96/0.93/0.92
	450	0.80	56/5.9/165	67/7.0/197	79/8.3/233	95/9.8/277	115/11.7/333	1.23/1.32/1.20	0.95/0.91/0.91
	500	0.89	75/8.8/235	89/10.4/278	105/12.2/327	124/14.3/384	148/16.7/454		0.92/0.87/0.88
	CMBT SPD KIAS/MACH		95/11.9/307	110/13.8/357	128/15.9/412	148/18.1/474	173/20.8/548	1.37/1.46/1.28	0.94/0.90/0.92
			515/0.91	515/0.91	514/0.91	514/0.91	514/0.90	0.97/0.97	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	10/0.8/26	13/0.9/33	17/1.2/41	22/1.6/54	30/2.2/75	1.07/1.11/1.09	0.97/0.93/0.91
	300	0.54	21/1.7/54	26/2.1/67	32/2.5/82	40/3.1/103	52/4.1/134	1.08/1.12/1.09	0.97/0.93/0.92
	350	0.63	32/2.8/87	39/3.4/105	47/4.1/127	58/5.0/156	73/6.3/196	1.10/1.15/1.11	0.97/0.93/0.92
	400	0.72	45/4.4/127	54/5.2/153	65/6.2/183	78/7.5/220	97/9.1/270	1.15/1.21/1.14	0.96/0.93/0.92
	450	0.80	61/6.5/181	73/7.8/216	87/9.2/257	104/10.9/305	126/13.0/368	1.30/1.40/1.27	0.95/0.91/0.91
	500	0.89	91/11.1/290	108/13.1/343	127/15.3/403	150/17.9/473	179/21.0/560		0.88/0.82/0.84
	CMBT SPD KIAS/MACH		110/14.1/362	129/16.4/421	150/18.9/487	174/21.6/560	203/24.8/648	1.18/1.20/1.08	0.88/0.83/0.85
			507/0.90	507/0.90	507/0.90	507/0.90	506/0.90	0.94/0.94	1.01/1.01

Figure B8-6. (Sheet 2)

MIL Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−25°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.0/21	16/1.3/27	20/1.7/36	27/2.3/48	39/3.3/68	1.04/1.08/1.08	0.98/0.94/0.91
	300	0.65	23/2.2/43	30/2.8/55	38/3.5/69	49/4.5/89	66/6.0/120	1.04/1.08/1.09	0.98/0.94/0.91
	350	0.75	34/3.5/66	43/4.4/83	54/5.4/104	68/6.8/131	89/8.7/169	1.05/1.09/1.09	0.98/0.93/0.91
	400	0.85	45/4.9/91	56/6.2/114	70/7.6/141	87/9.3/174	110/11.7/220	1.06/1.11/1.10	0.97/0.93/0.91
	450	0.95	56/6.6/120	70/8.2/149	86/10.0/183	105/12.2/223	132/15.0/277	1.09/1.15/1.12	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		107/15.5/271	126/17.9/314	145/20.2/356	166/22.6/400	191/25.0/446	0.86/0.84/0.80	1.03/1.01/1.01
			491/1.03	489/1.03	487/1.02	484/1.02	481/1.01	0.97/0.97	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.1/22	16/1.4/28	21/1.8/37	29/2.4/50	42/3.5/73	1.04/1.08/1.08	0.98/0.94/0.91
	300	0.65	24/2.3/45	31/2.9/57	40/3.7/73	51/4.7/94	70/6.4/128	1.04/1.08/1.09	0.98/0.94/0.91
	350	0.75	36/3.7/70	46/4.6/88	57/5.8/111	73/7.3/140	96/9.4/182	1.05/1.09/1.09	0.98/0.94/0.91
	400	0.85	48/5.3/98	60/6.7/123	75/8.2/152	94/10.1/189	120/12.8/240	1.06/1.11/1.10	0.97/0.93/0.91
	450	0.95	62/7.5/136	78/9.3/169	96/11.4/207	118/13.9/254	149/17.2/315	1.13/1.20/1.15	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		83/11.0/194	101/13.2/234	121/15.5/277	144/18.3/328	176/21.7/392	1.05/1.08/1.04	0.98/0.94/0.93
			466/0.98	465/0.98	464/0.98	463/0.98	462/0.97	0.98/0.99	1.01/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	15/1.2/26	19/1.6/34	26/2.1/45	36/3.0/63	59/4.9/103	1.04/1.08/1.08	0.99/0.95/0.92
	300	0.65	29/2.7/53	37/3.4/68	48/4.4/87	63/5.8/116	93/8.4/169	1.04/1.08/1.09	0.98/0.94/0.91
	350	0.75	43/4.4/84	55/5.5/106	69/7.0/133	89/8.9/171	124/12.1/235	1.05/1.09/1.09	0.98/0.94/0.92
	400	0.85	59/6.5/120	73/8.1/149	91/10.0/185	115/12.5/233	155/16.4/308	1.07/1.12/1.10	0.98/0.94/0.92
	450	0.95	83/10.3/185	103/12.8/229	127/15.7/282	159/19.4/351	210/24.9/454		0.96/0.92/0.91
	CMBT SPD KIAS/MACH		94/12.2/217	114/14.6/260	138/17.3/311	167/20.7/373	214/25.6/465	1.08/1.12/1.08	0.97/0.93/0.92
			454/0.96	453/0.96	452/0.96	452/0.95	451/0.95	0.99/0.99	1.00/1.00

Figure B8-7. (Sheet 1)

MIL Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−25°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	18/1.5/31	23/1.9/41	32/2.7/56	48/4.0/84	72/6.0/126	1.04/1.08/1.08	0.99/0.95/0.92
	300	0.65	34/3.2/63	44/4.1/81	58/5.3/106	81/7.4/148	115/10.4/209	1.04/1.08/1.09	0.98/0.94/0.92
	350	0.75	52/5.3/101	66/6.7/127	84/8.5/162	113/11.2/215	154/15.0/291	1.05/1.10/1.10	0.98/0.94/0.92
	400	0.85	72/8.0/148	90/10.0/184	113/12.4/230	147/15.9/296	194/20.6/387	1.08/1.13/1.11	0.98/0.94/0.92
	CMBT SPD KIAS/MACH		110/14.0/250	133/16.7/298	160/19.7/355	199/23.9/433	251/29.3/536	1.06/1.10/1.06	0.98/0.93/0.92
			443/0.94	442/0.94	441/0.93	440/0.93	439/0.93	0.99/0.99	1.00/1.00

***BASED ON 206 KIAS/0.45 MACH.**

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	21/1.8/37	28/2.4/50	41/3.4/71	72/6.0/126	65/5.6/116	1.04/1.08/1.08	0.99/0.95/0.92
	300	0.65	41/3.8/76	54/5.0/98	73/6.7/133	113/10.2/205	121/11.3/223	1.04/1.08/1.09	0.99/0.95/0.92
	350	0.75	63/6.5/123	80/8.2/156	105/10.6/203	154/15.0/291	171/17.3/330	1.05/1.10/1.10	0.98/0.94/0.92
	400	0.85	90/10.1/185	112/12.6/231	144/15.9/295	200/21.4/402	228/25.2/466	1.09/1.14/1.13	0.98/0.94/0.92
	CMBT SPD KIAS/MACH		128/15.9/285	155/19.1/342	191/23.1/417	253/29.4/538	286/34.0/617	1.09/1.14/1.11	0.98/0.93/0.92
			434/0.92	433/0.92	432/0.92	431/0.91	430/0.91	0.99/0.99	1.00/1.00

***BASED ON 219 KIAS/0.48 MACH.**

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	22/1.8/39	30/2.5/52	44/3.6/76	78/6.4/135	64/5.6/115	1.04/1.08/1.08	0.99/0.95/0.92
	300	0.65	44/4.1/81	57/5.3/105	78/7.2/144	123/11.0/223	127/12.1/237	1.04/1.08/1.09	0.99/0.94/0.92
	350	0.75	69/7.1/134	88/9.0/171	117/11.8/225	170/16.7/324	188/19.3/365	1.06/1.10/1.10	0.98/0.94/0.92
	400	0.85	103/11.7/214	130/14.7/269	168/18.8/346	234/25.5/474	268/30.4/557	1.11/1.17/1.15	0.98/0.94/0.92
	CMBT SPD KIAS/MACH		143/17.9/320	176/21.8/391	222/27.0/487	300/35.4/644	347/42.3/760	1.13/1.19/1.15	0.98/0.94/0.92
			427/0.91	426/0.90	426/0.90	425/0.90	423/0.90	0.98/0.99	1.00/1.00

***BASED ON 201 KIAS/0.44 MACH.**
****BASED ON 222 KIAS/0.49 MACH.**

Figure B8-7. (Sheet 2)

MIL Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 0	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	24/2.4/29	34/3.3/41	50/4.9/60	90/8.8/109	86/8.8/106	1.04/1.08/1.10	0.97/0.93/0.91
	300	0.79	45/4.9/58	61/6.6/79	86/9.2/110	138/14.5/174	154/16.8/199	1.04/1.08/1.10	0.97/0.93/0.91
	350	0.91	65/7.6/89	86/10.0/117	117/13.5/158	176/19.8/234	202/23.5/274	1.04/1.08/1.10	0.97/0.93/0.91
	400	1.02	119/16.5/190						
	CMBT SPD KIAS/MACH		141/20.1/233	165/22.9/265	188/24.9/289	238/29.6/346	267/33.8/392	0.92/0.93/0.93	0.93/0.88/0.86
			404/1.03	399/1.02	393/1.01	388/1.00	4385/0.99	0.99/0.99	1.00/1.00

* BASED ON 220 KIAS/0.59 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 50	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	26/2.5/31	36/3.6/44	55/5.4/66	106/10.3/127	82/8.5/102	1.04/1.08/1.10	0.97/0.93/0.91
	300	0.79	49/5.3/63	67/7.2/86	95/10.2/122	161/16.8/202	162/18.0/212	1.04/1.08/1.10	0.98/0.93/0.91
	350	0.91	72/8.5/99	96/11.3/131	132/15.3/179	207/23.2/275	222/26.3/306	1.04/1.08/1.10	0.98/0.93/0.91
	CMBT SPD KIAS/MACH		109/14.4/166	138/17.9/207	178/22.5/261	257/31.0/363	276/34.7/400	1.03/1.08/1.08	0.97/0.92/0.90
			381/0.98	380/0.98	378/0.97	375/0.97	373/0.96	1.00/1.00	1.00/1.00

* BASED ON 224 KIAS/0.60 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 100	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	33/3.2/40	48/4.7/58	82/8.0/99	97/9.8/119	35/3.8/45	1.04/1.08/1.10	0.98/0.93/0.91
	300	0.79	63/6.8/81	88/9.5/113	136/14.4/173	175/19.1/226	168/19.5/226	1.04/1.08/1.10	0.98/0.94/0.91
	350	0.91	94/11.1/130	127/15.0/175	187/21.5/253	242/28.4/331	262/32.5/373	1.04/1.08/1.09	0.98/0.94/0.92
	CMBT SPD KIAS/MACH		129/16.6/192	168/21.3/246	231/28.3/330	286/35.1/407	301/38.5/441	1.04/1.08/1.09	0.97/0.93/0.91
			371/0.96	369/0.95	367/0.95	364/0.94	360/0.93	1.00/1.00	1.00/1.00

* BASED ON 216 KIAS/0.58 MACH.
** BASED ON 243 KIAS/0.65 MACH.

Figure B8-8. (Sheet 1)

MIL Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DI = 150	200	0.54	0/0/0	0/0/0	0/0/0*	0/0/0**	0/0/0***	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	43/4.2/52	68/6.7/82	110/10.9/134	61/6.4/77		1.03/1.08/1.10	0.98/0.93/0.91
	300	0.79	82/8.9/106	122/13.1/156	188/20.1/240	189/21.6/252	145/17.8/204	1.03/1.08/1.10	0.98/0.94/0.92
	350	0.91	127/15.2/177	181/21.3/249	267/31.2/365	305/37.9/435		1.04/1.08/1.09	0.99/0.94/0.92
	CMBT SPD KIAS/MACH		156/19.5/226	209/25.5/297	292/35.0/408	322/40.4/464	337/44.6/505	1.03/1.08/1.09	0.97/0.93/0.91
			360/0.93	358/0.93	356/0.92	353/0.92	349/0.91	1.00/1.00	1.00/1.00

*BASED ON 208 KIAS/0.56 MACH.
**BASED ON 236 KIAS/0.63 MACH.
***BASED ON 270 KIAS/0.72 MACH.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB		+20°C	−20°C
DI = 200	200	0.54	0/0/0	0/0/0	0/0/0*	0/0/0**		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	59/5.8/71	112/10.9/135	85/8.9/106			1.03/1.08/1.09	0.99/0.94/0.92
	300	0.79	113/12.3/146	190/20.3/243	213/24.1/282	168/20.7/236		1.03/1.08/1.09	0.99/0.95/0.93
	350	0.91	188/22.8/264	298/35.4/413				1.04/1.08/1.09	1.00/0.96/0.94
	CMBT SPD KIAS/MACH		199/24.5/283	300/35.7/416	365/45.4/521	367/48.0/544		1.03/1.08/1.09	0.99/0.94/0.92
			352/0.91	350/0.91	348/0.90	337/0.88		1.00/1.00	1.00/1.00

*BASED ON 228 KIAS/0.61 MACH.
**BASED ON 268 KIAS/0.71 MACH.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB			+20°C	−20°C
DI = 250	200	0.54	0/0/0	0/0/0*	0/0/0**			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	66/6.5/80	127/12.5/154	65/6.9/83			1.03/1.08/1.09	0.98/0.94/0.92
	300	0.79	133/14.5/172	228/24.5/292	254/29.4/341			1.03/1.08/1.09	0.99/0.95/0.93
	CMBT SPD KIAS/MACH		248/30.8/355	370/44.3/516	393/48.2/553			1.04/1.08/1.09	0.99/0.95/0.93
			347/0.90	341/0.89	327/0.85			1.00/1.00	1.00/1.00

*BASED ON 202 KIAS/0.55 MACH.
**BASED ON 236 KIAS/0.63 MACH.

Figure B8-8. (Sheet 2)

MAX AB Accelerations — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	**MACH**	**GW 20,000 LB**	**24,000 LB**	**28,000 LB**	**32,000 LB**	**36,000 LB**	**+20˚C**	**−20˚C**
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/32	2/0.2/39	3/0.2/47	3/0.2/54	4/0.2/63	1.13/1.17/1.08	0.95/0.91/0.93
	300	0.45	4/0.3/65	5/0.3/79	6/0.4/93	7/0.5/108	8/0.5/124	1.15/1.19/1.09	0.94/0.91/0.93
	350	0.53	6/0.4/98	7/0.5/119	8/0.6/140	10/0.7/163	11/0.8/186	1.17/1.21/1.10	0.93/0.90/0.93
	400	0.60	8/0.6/132	9/0.8/160	11/0.9/189	13/1.0/218	14/1.2/249	1.18/1.23/1.11	0.92/0.89/0.93
	450	0.68	9/0.8/168	11/1.0/203	13/1.2/239	16/1.4/276	18/1.6/314	1.19/1.24/1.11	0.91/0.88/0.92
	500	0.76	11/1.1/205	14/1.3/248	16/1.5/291	18/1.8/336	21/2.0/382	1.20/1.25/1.12	0.91/0.87/0.92
	550	0.83	13/1.4/245	16/1.6/295	19/1.9/347	21/2.2/400	24/2.5/454	1.21/1.26/1.13	0.91/0.88/0.91
	600	0.91	15/1.6/287	18/2.0/346	21/2.3/406	24/2.7/467	28/3.0/530	1.22/1.28/1.14	0.92/0.89/0.91
	650	0.98	17/2.0/337	21/2.4/406	24/2.8/476	28/3.3/548	31/3.7/621	1.24/1.31/1.16	0.93/0.90/0.90
	700	1.06	20/2.7/421	25/3.2/507	29/3.8/594	33/4.3/682	38/4.9/773	1.35/1.46/1.27	0.95/0.93/0.91
	750	1.13	25/3.7/545	31/4.4/656	36/5.2/768	41/5.9/883	47/6.7/1000	1.69/1.95/1.64	0.98/0.97/0.93
	LIMIT SPD KIAS/MACH		33/5.4/750	40/6.5/902	47/7.6/1055	54/8.7/1211	61/9.8/1370	2.26/2.65/2.22	1.03/1.02/0.96
			800/1.21	800/1.21	800/1.21	800/1.21	800/1.21	0.97/0.97	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	**MACH**	**GW 20,000 LB**	**24,000 LB**	**28,000 LB**	**32,000 LB**	**36,000 LB**	**+20˚C**	**−20˚C**
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/32	2/0.2/39	3/0.2/47	3/0.2/55	4/0.2/63	1.13/1.17/1.08	0.95/0.91/0.93
	300	0.45	4/0.3/66	5/0.3/79	6/0.4/94	7/0.5/109	8/0.5/126	1.15/1.19/1.09	0.94/0.91/0.93
	350	0.53	6/0.4/99	7/0.5/120	8/0.6/142	10/0.7/165	11/0.8/188	1.17/1.21/1.10	0.93/0.90/0.93
	400	0.60	8/0.6/134	9/0.8/162	11/0.9/191	13/1.1/221	15/1.2/253	1.18/1.23/1.11	0.92/0.89/0.93
	450	0.68	10/0.9/171	12/1.0/206	14/1.2/243	16/1.4/280	18/1.6/320	1.19/1.24/1.12	0.91/0.87/0.92
	500	0.76	12/1.1/210	14/1.3/253	16/1.6/298	19/1.8/343	21/2.1/390	1.20/1.26/1.13	0.91/0.87/0.92
	550	0.83	13/1.4/252	16/1.7/303	19/2.0/356	22/2.3/410	25/2.6/466	1.22/1.27/1.14	0.91/0.88/0.91
	600	0.91	15/1.7/297	19/2.1/358	22/2.4/420	25/2.8/483	29/3.1/548	1.23/1.29/1.15	0.92/0.89/0.90
	650	0.98	18/2.2/357	22/2.6/430	25/3.0/504	29/3.5/580	33/3.9/657	1.27/1.35/1.19	0.93/0.91/0.90
	700	1.06	24/3.3/510	29/4.0/614	34/4.7/720	39/5.4/827	45/6.1/937		1.00/0.99/0.95
	750	1.13	42/6.9/949	50/8.2/1135	58/9.6/1323	67/11.0/1515	76/12.4/1719		
	CMBT SPD KIAS/MACH		65/11.8/1541	76/13.7/1799	87/15.6/2057	98/17.5/2307	109/19.4/2560	0.71/0.63/0.61	1.00/0.96/0.91
			762/1.15	762/1.15	762/1.15	762/1.15	762/1.15	0.90/0.90	0.98/0.98

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	**MACH**	**GW 22,000 LB**	**26,000 LB**	**30,000 LB**	**34,000 LB**	**38,000 LB**	**+20˚C**	**−20˚C**
DRAG INDEX = 100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/36	3/0.2/43	3/0.2/51	4/0.2/59	4/0.3/68	1.14/1.18/1.08	0.95/0.91/0.93
	300	0.45	4/0.3/73	5/0.4/87	6/0.4/102	7/0.5/118	8/0.6/135	1.15/1.20/1.09	0.94/0.91/0.93
	350	0.53	7/0.5/111	8/0.6/133	9/0.7/155	11/0.8/178	12/0.9/203	1.17/1.22/1.10	0.93/0.90/0.93
	400	0.60	9/0.7/150	10/0.9/179	12/1.0/209	14/1.1/240	16/1.3/273	1.19/1.23/1.11	0.92/0.88/0.93
	450	0.68	11/1.0/192	13/1.2/229	15/1.3/266	17/1.5/305	19/1.7/346	1.20/1.25/1.12	0.91/0.87/0.92
	500	0.76	13/1.3/237	15/1.5/282	18/1.7/327	21/2.0/375	23/2.2/424	1.21/1.26/1.13	0.91/0.87/0.91
	550	0.83	15/1.6/285	18/1.9/339	21/2.2/394	24/2.5/450	27/2.8/508	1.22/1.28/1.15	0.91/0.87/0.91
	600	0.91	18/2.0/339	21/2.3/403	24/2.7/467	28/3.1/534	31/3.5/602	1.24/1.31/1.16	0.92/0.89/0.90
	650	0.98	21/2.6/424	25/3.1/503	29/3.5/583	33/4.0/664	37/4.5/748	1.35/1.46/1.27	0.94/0.91/0.91
	CMBT SPD KIAS/MACH		42/6.6/940	49/7.6/1087	56/8.6/1232	62/9.5/1373	69/10.4/1513	0.91/0.85/0.80	0.91/0.87/0.84
			686/1.04	685/1.04	685/1.04	685/1.04	684/1.03	0.96/0.96	0.99/0.99

Figure B8-9. (Sheet 1)

MAX AB Accelerations — Sea Level

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.2/40	3/0.2/48	3/0.2/56	4/0.2/64	5/0.3/74	1.14/1.18/1.09	0.95/0.91/0.93
	300	0.45	5/0.3/81	6/0.4/96	7/0.5/111	8/0.5/128	9/0.6/146	1.16/1.20/1.09	0.94/0.91/0.93
	350	0.53	7/0.6/123	9/0.7/145	10/0.8/168	11/0.9/193	13/1.0/219	1.18/1.22/1.10	0.93/0.90/0.93
	400	0.60	10/0.8/167	11/0.9/197	13/1.1/228	15/1.2/260	17/1.4/294	1.19/1.24/1.12	0.92/0.88/0.93
	450	0.68	12/1.1/214	14/1.3/252	16/1.5/291	19/1.7/331	21/1.9/374	1.20/1.25/1.13	0.91/0.87/0.92
	500	0.76	15/1.4/265	17/1.7/311	20/1.9/359	22/2.2/408	25/2.4/460	1.22/1.27/1.14	0.91/0.87/0.91
	550	0.83	17/1.8/321	20/2.1/377	23/2.4/434	26/2.7/493	30/3.1/554	1.23/1.29/1.15	0.91/0.87/0.91
	600	0.91	20/2.2/386	23/2.6/452	27/3.0/520	31/3.4/589	34/3.8/661	1.26/1.33/1.18	0.92/0.89/0.90
	650	0.98	26/3.2/518	30/3.8/607	34/4.3/697	39/4.9/788	44/5.5/882		0.96/0.94/0.92
	CMBT SPD KIAS/MACH		35/4.9/740	40/5.6/852	45/6.3/964	51/7.1/1075	56/7.8/1188	1.16/1.17/1.06	0.93/0.90/0.87
			660/1.00	660/1.00	659/1.00	659/1.00	659/1.00	0.98/0.98	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/44	3/0.2/52	4/0.2/60	4/0.3/70	5/0.3/80	1.14/1.18/1.09	0.95/0.91/0.93
	300	0.45	5/0.4/89	6/0.4/104	7/0.5/121	8/0.6/138	10/0.7/157	1.16/1.20/1.10	0.94/0.91/0.93
	350	0.53	8/0.6/136	9/0.7/159	11/0.8/183	12/0.9/208	14/1.1/235	1.18/1.22/1.11	0.93/0.90/0.93
	400	0.60	11/0.9/185	12/1.0/215	14/1.2/247	16/1.3/281	18/1.5/317	1.19/1.24/1.12	0.92/0.88/0.92
	450	0.68	13/1.2/237	16/1.4/276	18/1.6/317	20/1.8/359	23/2.0/403	1.21/1.26/1.13	0.91/0.87/0.92
	500	0.76	16/1.6/295	19/1.8/343	22/2.1/393	24/2.4/444	27/2.6/498	1.22/1.28/1.15	0.90/0.86/0.91
	550	0.83	19/2.0/360	22/2.3/418	25/2.7/478	29/3.0/539	32/3.3/603	1.24/1.31/1.16	0.91/0.87/0.90
	600	0.91	22/2.5/436	26/2.9/506	30/3.4/578	34/3.8/651	38/4.2/727	1.28/1.35/1.20	0.92/0.89/0.90
	CMBT SPD KIAS/MACH		37/5.1/774	42/5.7/883	47/6.4/992	53/7.1/1102	58/7.8/1213	1.19/1.21/1.09	0.93/0.90/0.87
			648/0.98	648/0.98	648/0.98	647/0.98	647/0.98	0.98/0.98	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/44	3/0.2/52	4/0.2/61	4/0.3/70	5/0.3/81	1.14/1.18/1.09	0.95/0.91/0.93
	300	0.45	5/0.4/90	6/0.4/105	7/0.5/122	8/0.6/139	10/0.7/159	1.16/1.20/1.10	0.94/0.91/0.93
	350	0.53	8/0.6/138	9/0.7/161	11/0.8/185	12/0.9/211	14/1.1/238	1.18/1.23/1.11	0.93/0.90/0.93
	400	0.60	11/0.9/188	13/1.0/219	14/1.2/251	16/1.4/285	19/1.5/322	1.20/1.25/1.12	0.92/0.88/0.92
	450	0.68	14/1.2/242	16/1.4/282	18/1.6/323	21/1.8/366	23/2.1/411	1.21/1.27/1.14	0.91/0.87/0.92
	500	0.76	17/1.6/302	19/1.9/352	22/2.1/403	25/2.4/455	28/2.7/510	1.23/1.29/1.15	0.90/0.86/0.91
	550	0.83	20/2.1/372	23/2.4/432	26/2.8/493	30/3.1/557	33/3.5/623	1.26/1.32/1.18	0.90/0.87/0.90
	600	0.91	23/2.7/457	27/3.1/530	31/3.5/605	35/4.0/681	39/4.4/761	1.30/1.38/1.22	0.92/0.89/0.90
	CMBT SPD KIAS/MACH		36/4.9/763	42/5.6/871	47/6.3/980	52/7.0/1089	58/7.7/1200	1.24/1.28/1.14	0.93/0.90/0.88
			638/0.96	638/0.96	638/0.96	638/0.96	638/0.96	0.98/0.98	1.00/1.00

Figure B8-9. (Sheet 2)

MAX AB Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	3/0.2/37	4/0.3/46	5/0.3/55	6/0.4/65	7/0.5/76	1.08/1.12/1.06	0.96/0.93/0.93
	300	0.54	6/0.5/75	8/0.6/91	9/0.7/109	11/0.8/128	12/1.0/148	1.09/1.14/1.06	0.96/0.93/0.93
	350	0.63	9/0.8/113	11/0.9/137	13/1.1/163	15/1.3/190	17/1.5/219	1.11/1.16/1.06	0.96/0.93/0.93
	400	0.72	12/1.1/151	14/1.3/183	17/1.6/217	19/1.8/252	22/2.1/290	1.13/1.18/1.07	0.96/0.92/0.93
	450	0.80	14/1.4/189	17/1.7/229	20/2.0/271	23/2.3/314	27/2.7/360	1.15/1.21/1.09	0.95/0.91/0.93
	500	0.89	16/1.8/229	20/2.1/277	23/2.5/327	27/2.9/378	31/3.3/432	1.17/1.23/1.10	0.94/0.90/0.92
	550	0.97	19/2.2/272	23/2.6/329	27/3.1/387	31/3.6/447	36/4.1/511	1.19/1.26/1.12	0.93/0.88/0.92
	600	1.06	22/2.7/331	26/3.3/400	31/3.9/470	36/4.5/543	41/5.1/618	1.23/1.32/1.17	0.90/0.85/0.90
	650	1.14	25/3.4/404	31/4.1/488	36/4.9/574	42/5.6/662	48/6.4/753	1.30/1.42/1.24	0.88/0.82/0.87
	700	1.23	29/4.3/492	36/5.1/593	42/6.0/697	48/7.0/803	55/7.9/914	1.44/1.61/1.37	0.87/0.81/0.86
	750	1.32	34/5.3/601	41/6.4/724	48/7.5/850	56/8.7/979	64/9.8/1113	1.80/2.14/1.76	0.86/0.81/0.84
	LIMIT SPD KIAS/MACH		41/6.9/757	49/8.3/911	57/9.7/1068	66/11.2/1230	75/12.7/1396	2.56/3.18/2.53	0.84/0.79/0.81
			800/1.41	800/1.41	800/1.41	800/1.41	800/1.41	0.97/0.96	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	3/0.2/38	4/0.3/46	5/0.3/55	6/0.4/66	7/0.5/77	1.08/1.12/1.06	0.96/0.93/0.93
	300	0.54	6/0.5/76	8/0.6/93	9/0.7/110	11/0.8/129	12/1.0/150	1.09/1.14/1.06	0.96/0.93/0.93
	350	0.63	9/0.8/114	11/1.0/139	13/1.1/165	15/1.3/193	18/1.5/223	1.11/1.16/1.06	0.96/0.93/0.93
	400	0.72	12/1.1/154	14/1.3/187	17/1.6/221	20/1.8/257	23/2.1/295	1.14/1.19/1.08	0.96/0.92/0.93
	450	0.80	14/1.5/194	17/1.8/235	20/2.1/277	24/2.4/322	27/2.8/369	1.16/1.22/1.09	0.95/0.91/0.93
	500	0.89	17/1.8/235	20/2.2/285	24/2.6/336	28/3.0/389	32/3.4/445	1.18/1.24/1.11	0.94/0.90/0.92
	550	0.97	20/2.3/284	24/2.8/343	28/3.2/403	32/3.7/466	37/4.3/532	1.20/1.27/1.13	0.92/0.87/0.91
	600	1.06	24/3.0/361	29/3.6/436	34/4.3/513	39/4.9/592	44/5.6/674	1.30/1.42/1.24	0.88/0.83/0.88
	650	1.14	29/4.0/467	35/4.9/564	41/5.7/662	47/6.6/764	54/7.5/870	1.53/1.72/1.48	0.85/0.79/0.84
	700	1.23	35/5.4/609	42/6.5/733	50/7.6/861	58/8.7/992	66/9.9/1128		0.83/0.76/0.81
	750	1.32	45/7.7/848	55/9.2/1019	64/10.8/1193	74/12.4/1373	84/14.1/1559		0.80/0.73/0.76
	CMBT SPD KIAS/MACH		88/18.2/1897	104/21.2/2221	119/24.2/2535	134/27.1/2849	150/30.1/3162	1.01/0.93/0.82	0.59/0.52/0.54
			790/1.39	790/1.39	790/1.39	790/1.39	789/1.39	0.87/0.87	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/42	4/0.3/51	5/0.4/61	6/0.4/72	7/0.5/84	1.08/1.12/1.06	0.96/0.93/0.93
	300	0.54	7/0.6/85	8/0.7/103	10/0.8/121	12/0.9/141	13/1.1/164	1.10/1.14/1.06	0.96/0.93/0.93
	350	0.63	10/0.9/129	12/1.1/154	14/1.3/182	17/1.5/211	19/1.7/243	1.12/1.16/1.07	0.96/0.93/0.93
	400	0.72	13/1.2/173	16/1.5/207	19/1.8/243	21/2.0/281	25/2.3/322	1.14/1.19/1.08	0.96/0.92/0.93
	450	0.80	16/1.6/219	19/2.0/262	23/2.3/306	26/2.6/353	30/3.0/403	1.16/1.22/1.10	0.95/0.91/0.93
	500	0.89	19/2.1/268	23/2.5/319	27/2.9/373	31/3.3/429	35/3.8/488	1.19/1.25/1.12	0.94/0.89/0.92
	550	0.97	22/2.6/328	27/3.2/390	31/3.7/455	36/4.2/522	41/4.8/592	1.22/1.30/1.15	0.92/0.87/0.91
	600	1.06	29/3.9/456	35/4.6/543	41/5.3/632	47/6.1/724	53/6.9/820	1.87/2.22/1.87	0.85/0.78/0.84
	650	1.14	39/5.9/666	47/7.0/792	55/8.1/921	63/9.3/1055	71/10.5/1195		0.78/0.70/0.75
	700	1.23	59/10.1/1110	70/11.9/1309	81/13.8/1516	93/15.7/1732	106/17.8/1962		0.68/0.61/0.64
	CMBT SPD KIAS/MACH		93/17.6/1889	108/20.2/2180	123/23.0/2479	138/25.7/2772	153/28.4/3063	1.11/1.04/0.92	0.87/0.85/0.86
			715/1.26	715/1.26	715/1.26	715/1.26	715/1.26	0.86/0.86	1.03/1.03

Figure B8-10. (Sheet 1)

MAX AB Accelerations — 10,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−5°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/47	5/0.3/57	6/0.4/67	7/0.5/79	8/0.6/92	1.09/1.13/1.06	0.96/0.93/0.93
	300	0.54	8/0.6/95	9/0.7/113	11/0.9/133	13/1.0/155	15/1.2/179	1.10/1.14/1.06	0.96/0.93/0.93
	350	0.63	11/1.0/144	13/1.2/171	16/1.4/199	18/1.6/230	21/1.8/264	1.12/1.17/1.07	0.96/0.93/0.93
	400	0.72	15/1.4/194	18/1.7/230	20/1.9/267	23/2.2/307	27/2.5/351	1.14/1.20/1.08	0.96/0.92/0.93
	450	0.80	18/1.9/246	21/2.2/291	25/2.5/338	29/2.9/387	33/3.3/440	1.17/1.23/1.10	0.95/0.91/0.93
	500	0.89	22/2.4/302	25/2.8/356	29/3.2/413	34/3.7/472	38/4.1/535	1.19/1.26/1.13	0.94/0.89/0.92
	550	0.97	26/3.1/378	30/3.6/445	35/4.2/514	40/4.7/586	46/5.3/663	1.25/1.34/1.18	0.91/0.86/0.90
	600	1.06	43/6.1/700	50/7.2/825	58/8.4/955	67/9.6/1094	76/10.9/1245		0.71/0.62/0.68
	650	1.14	111/19.5/2107	128/22.5/2431	148/26.0/2814	172/30.2/3263			0.39/0.32/0.35
	CMBT SPD KIAS/MACH		119/21.3/2295	138/24.5/2646	157/27.8/2997	176/31.2/3365	197/34.7/3749	0.43/0.36/0.34	0.64/0.61/0.64
			651/1.14	652/1.14	651/1.14	651/1.14	650/1.14	0.88/0.88	1.05/1.05

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/52	5/0.4/62	6/0.5/73	7/0.5/86	9/0.6/102	1.09/1.13/1.06	0.96/0.93/0.93
	300	0.54	9/0.7/105	10/0.8/125	12/1.0/145	14/1.1/169	16/1.3/195	1.10/1.14/1.06	0.96/0.93/0.93
	350	0.63	13/1.1/160	15/1.3/188	17/1.5/218	20/1.7/251	23/2.0/288	1.12/1.17/1.07	0.96/0.93/0.93
	400	0.72	16/1.6/216	19/1.8/253	22/2.1/293	26/2.4/336	29/2.7/383	1.15/1.20/1.09	0.96/0.92/0.93
	450	0.80	20/2.1/275	24/2.4/322	27/2.8/371	31/3.2/424	36/3.6/481	1.18/1.24/1.11	0.95/0.91/0.93
	500	0.89	24/2.7/340	28/3.1/397	33/3.6/456	37/4.0/519	42/4.6/587	1.20/1.27/1.14	0.93/0.89/0.92
	550	0.97	30/3.6/439	35/4.2/511	40/4.8/586	45/5.4/665	51/6.1/749	1.31/1.43/1.26	0.90/0.84/0.89
	CMBT SPD KIAS/MACH		52/7.5/852	59/8.5/966	66/9.5/1080	73/10.4/1192	81/11.3/1304	0.99/0.97/0.89	2.02/2.34/2.35
			576/1.02	576/1.02	576/1.02	575/1.01	575/1.01	0.97/0.97	1.10/1.10

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	5/0.3/53	5/0.4/63	6/0.5/74	7/0.5/87	9/0.6/103	1.09/1.13/1.06	0.96/0.93/0.93
	300	0.54	9/0.7/107	10/0.8/126	12/1.0/147	14/1.1/171	16/1.3/198	1.10/1.14/1.06	0.96/0.93/0.93
	350	0.63	13/1.1/162	15/1.3/191	18/1.5/222	20/1.8/256	23/2.0/293	1.12/1.17/1.07	0.96/0.93/0.93
	400	0.72	17/1.6/221	20/1.9/259	23/2.2/299	26/2.5/343	30/2.8/391	1.15/1.21/1.09	0.96/0.92/0.93
	450	0.80	21/2.1/283	24/2.5/331	28/2.9/381	32/3.3/435	37/3.7/494	1.18/1.25/1.11	0.95/0.91/0.92
	500	0.89	25/2.8/352	29/3.2/410	34/3.7/472	38/4.2/537	43/4.7/607	1.22/1.29/1.15	0.93/0.89/0.92
	550	0.97	32/4.0/480	37/4.6/558	43/5.3/639	49/6.0/725	55/6.7/816		0.87/0.81/0.86
	CMBT SPD KIAS/MACH		44/6.0/701	51/6.9/800	57/7.7/901	64/8.6/1005	71/9.5/1111	1.14/1.16/1.04	1.07/1.08/1.14
			561/0.99	561/0.99	561/0.99	561/0.99	560/0.99	0.98/0.98	1.03/1.03

Figure B8-10. (Sheet 2)

MAX AB Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	5/0.4/44	7/0.6/55	8/0.7/67	10/0.8/81	12/1.0/98	1.07/1.11/1.06	0.96/0.92/0.93
	300	0.65	10/0.9/88	12/1.2/108	15/1.4/130	18/1.7/155	21/2.0/184	1.07/1.11/1.06	0.96/0.92/0.93
	350	0.75	14/1.5/131	18/1.8/160	21/2.1/192	25/2.5/227	30/2.9/267	1.07/1.12/1.06	0.96/0.92/0.93
	400	0.85	18/2.0/174	22/2.4/212	27/2.9/253	31/3.4/298	37/3.9/347	1.08/1.13/1.06	0.96/0.92/0.93
	450	0.95	22/2.5/217	27/3.1/265	32/3.6/315	37/4.3/368	43/4.9/427	1.10/1.16/1.07	0.95/0.91/0.92
	500	1.05	26/3.2/270	31/3.9/328	37/4.6/389	44/5.3/454	50/6.2/525	1.14/1.21/1.10	0.95/0.90/0.92
	550	1.14	30/4.0/332	36/4.8/403	43/5.7/478	51/6.7/557	58/7.7/641	1.18/1.27/1.15	0.93/0.88/0.91
	600	1.24	34/4.9/404	42/5.9/490	50/7.0/579	58/8.2/674	67/9.4/775	1.23/1.33/1.19	0.91/0.85/0.89
	650	1.34	39/6.0/490	48/7.2/593	57/8.6/701	66/9.9/814	76/11.4/934	1.29/1.42/1.26	0.89/0.83/0.87
	700	1.45	45/7.3/596	55/8.9/722	65/10.5/852	75/12.1/988	86/13.9/1132	1.45/1.64/1.42	0.87/0.80/0.84
	750	1.56	52/9.2/744	63/11.2/899	75/13.1/1060	87/15.2/1228	100/17.4/1405		0.83/0.76/0.80
	LIMIT SPD KIAS/MACH		69/13.8/1077	83/16.6/1297	98/19.4/1524	113/22.5/1762	130/25.7/2018	1.71/1.89/1.59	0.71/0.61/0.66
			800/1.68	800/1.68	800/1.68	800/1.68	800/1.68	0.92/0.92	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	5/0.5/45	7/0.6/56	8/0.7/68	10/0.8/82	12/1.0/99	1.07/1.11/1.06	0.96/0.92/0.93
	300	0.65	10/1.0/90	13/1.2/110	15/1.4/133	18/1.7/158	22/2.0/188	1.07/1.11/1.06	0.96/0.92/0.93
	350	0.75	15/1.5/134	18/1.8/164	22/2.2/197	26/2.6/233	30/3.0/273	1.07/1.12/1.06	0.96/0.92/0.93
	400	0.85	19/2.0/179	23/2.5/218	27/3.0/260	32/3.5/306	38/4.1/357	1.09/1.13/1.07	0.96/0.92/0.93
	450	0.95	23/2.6/225	27/3.2/274	33/3.8/326	38/4.4/382	45/5.1/443	1.11/1.16/1.08	0.95/0.91/0.92
	500	1.05	27/3.4/289	33/4.2/351	39/4.9/416	46/5.7/486	53/6.6/562	1.16/1.24/1.13	0.94/0.90/0.92
	550	1.14	33/4.4/369	40/5.4/448	47/6.4/530	55/7.4/618	64/8.5/712	1.24/1.35/1.21	0.92/0.86/0.90
	600	1.24	39/5.7/466	47/6.9/565	56/8.1/668	65/9.5/777	75/10.9/893	1.34/1.48/1.32	0.88/0.82/0.87
	650	1.34	46/7.4/598	56/8.9/724	67/10.5/855	77/12.2/992	89/14.0/1138	1.60/1.84/1.60	0.85/0.78/0.82
	700	1.45	57/9.8/794	69/11.9/959	81/14.0/1130	94/16.2/1310	108/18.5/1500		0.80/0.73/0.77
	750	1.56	83/16.6/1318	99/19.8/1572	116/23.1/1837	135/26.8/2130	155/30.8/2447		0.65/0.56/0.60
	CMBT SPD KIAS/MACH		110/24.0/1882	131/28.3/2213	152/32.6/2555	173/37.1/2910	195/41.4/3253	1.11/1.05/0.92	0.60/0.51/0.55
			757/1.58	757/1.58	758/1.58	758/1.58	757/1.58	0.88/0.88	1.06/1.06

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	6/0.5/51	8/0.6/63	9/0.8/76	11/0.9/92	14/1.1/112	1.07/1.11/1.06	0.96/0.92/0.93
	300	0.65	12/1.1/102	14/1.3/124	17/1.6/148	20/1.9/176	24/2.2/210	1.07/1.11/1.06	0.96/0.92/0.93
	350	0.75	17/1.7/152	20/2.0/184	24/2.4/219	29/2.9/259	34/3.4/304	1.07/1.12/1.06	0.96/0.92/0.93
	400	0.85	21/2.3/204	26/2.8/246	31/3.3/291	36/3.9/341	42/4.5/397	1.09/1.14/1.07	0.96/0.92/0.93
	450	0.95	26/3.0/259	31/3.6/312	37/4.3/367	43/5.0/428	50/5.7/496	1.12/1.17/1.08	0.95/0.91/0.92
	500	1.05	32/4.1/348	39/5.0/418	46/5.8/491	53/6.7/570	62/7.8/657	1.22/1.32/1.19	0.93/0.89/0.91
	550	1.14	41/5.7/472	49/6.9/565	58/8.0/663	67/9.3/768	77/10.7/882	1.42/1.58/1.40	0.89/0.84/0.87
	600	1.24	52/7.9/641	62/9.4/766	72/11.0/897	84/12.7/1036	96/14.5/1186	2.01/2.40/2.09	0.84/0.77/0.81
	650	1.34	70/11.9/961	83/14.2/1144	97/16.6/1337	113/19.1/1541	129/21.8/1762		0.74/0.66/0.70
	CMBT SPD KIAS/MACH		134/27.4/2188	157/31.9/2547	179/36.2/2897	202/40.6/3249	226/45.1/3608	0.96/0.90/0.79	1.15/1.23/1.30
			691/1.43	691/1.43	691/1.43	690/1.43	689/1.43	0.87/0.87	1.12/1.12

Figure B8-11. (Sheet 1)

MAX AB Accelerations — 20,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−25°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	7/0.6/58	8/0.7/70	10/0.9/85	12/1.0/103	15/1.3/127	1.07/1.11/1.06	0.96/0.92/0.93
	300	0.65	13/1.2/115	16/1.5/138	19/1.8/165	23/2.1/197	27/2.5/235	1.07/1.11/1.06	0.96/0.92/0.93
	350	0.75	19/1.9/172	23/2.3/207	27/2.7/245	32/3.2/288	38/3.7/339	1.08/1.12/1.07	0.96/0.92/0.93
	400	0.85	24/2.6/231	29/3.1/276	34/3.7/325	40/4.3/380	47/5.0/443	1.09/1.14/1.07	0.96/0.92/0.93
	450	0.95	30/3.5/297	35/4.1/353	41/4.8/414	48/5.6/480	56/6.4/556	1.12/1.18/1.09	0.95/0.91/0.92
	500	1.05	40/5.2/433	47/6.1/514	55/7.2/600	64/8.3/695	74/9.5/802	1.49/1.69/1.49	0.92/0.87/0.89
	550	1.14	55/8.1/661	66/9.6/783	77/11.2/913	89/12.9/1053	102/14.8/1209		0.84/0.77/0.81
	600	1.24	84/14.1/1130	100/16.6/1333	116/19.3/1551	134/22.2/1788	154/25.5/2051		0.68/0.60/0.64
	CMBT SPD KIAS/MACH		130/23.9/1903	150/27.4/2187	170/31.0/2470	191/34.4/2743	212/37.8/3017	1.41/1.38/1.22	0.99/1.02/1.07
			615/1.27	615/1.27	615/1.27	614/1.27	613/1.27	0.88/0.89	1.09/1.09

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	8/0.7/65	10/0.8/79	12/1.0/95	14/1.2/117	18/1.5/146	1.07/1.11/1.06	0.96/0.92/0.93
	300	0.65	15/1.4/129	18/1.6/154	21/2.0/184	25/2.3/220	31/2.8/266	1.07/1.11/1.06	0.96/0.92/0.93
	350	0.75	21/2.2/194	25/2.6/231	30/3.0/273	36/3.5/321	42/4.2/381	1.08/1.12/1.07	0.96/0.92/0.93
	400	0.85	27/3.0/261	33/3.5/310	38/4.1/363	45/4.8/424	53/5.6/496	1.09/1.14/1.07	0.96/0.92/0.93
	450	0.95	34/4.0/340	40/4.7/400	47/5.4/467	54/6.3/541	63/7.2/628	1.13/1.20/1.10	0.95/0.91/0.92
	500	1.05	53/7.4/610	63/8.7/723	74/10.2/848	87/12.0/994	103/14.1/1167		0.85/0.79/0.81
	550	1.14	108/17.5/1398	127/20.7/1656	149/24.3/1941	175/28.5/2277	207/33.7/2692		0.60/0.53/0.56
	CMBT SPD KIAS/MACH		154/26.6/2110	177/30.5/2418	201/34.6/2741	228/38.9/3088	259/43.9/3491	0.44/0.37/0.35	0.83/0.82/0.89
			564/1.17	563/1.17	563/1.17	562/1.17	561/1.16	0.85/0.86	1.08/1.08

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	8/0.7/66	10/0.8/80	12/1.0/97	14/1.2/119	18/1.5/149	1.07/1.11/1.06	0.96/0.92/0.93
	300	0.65	15/1.4/132	18/1.7/158	22/2.0/188	26/2.4/225	32/2.9/273	1.07/1.11/1.06	0.96/0.92/0.93
	350	0.75	22/2.2/199	26/2.6/237	31/3.1/280	37/3.7/330	44/4.3/392	1.08/1.12/1.07	0.96/0.92/0.93
	400	0.85	28/3.1/270	34/3.7/320	39/4.3/375	46/5.0/438	54/5.8/514	1.10/1.15/1.08	0.96/0.92/0.93
	450	0.95	35/4.2/357	42/4.9/421	49/5.7/490	57/6.6/569	66/7.6/660	1.15/1.22/1.12	0.95/0.91/0.92
	CMBT SPD KIAS/MACH		65/9.3/762	74/10.5/864	84/11.7/968	94/13.0/1074	105/14.2/1185	0.94/0.94/0.86	1.15/1.16/1.18
			486/1.02	485/1.02	484/1.02	483/1.01	481/1.01	0.97/0.97	1.02/1.02

Figure B8-11. (Sheet 2)

MAX AB Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	9/0.9/54	12/1.2/68	15/1.5/85	19/1.8/108	24/2.4/139	1.08/1.12/1.07	0.95/0.91/0.92
	300	0.79	17/1.8/105	21/2.3/131	26/2.8/162	33/3.5/199	41/4.3/248	1.08/1.12/1.07	0.95/0.91/0.92
	350	0.91	24/2.8/154	29/3.4/191	36/4.2/233	44/5.0/282	54/6.1/345	1.08/1.12/1.07	0.95/0.91/0.92
	400	1.02	30/3.8/208	37/4.6/256	45/5.6/311	54/6.7/373	66/8.1/450	1.08/1.13/1.07	0.95/0.91/0.92
	450	1.13	37/4.9/272	45/6.0/335	55/7.3/404	65/8.7/482	79/10.4/576	1.11/1.17/1.09	0.94/0.90/0.92
	500	1.25	43/6.1/341	52/7.5/418	63/9.0/503	76/10.7/598	91/12.7/709	1.15/1.22/1.12	0.94/0.89/0.91
	550	1.37	49/7.4/417	60/9.1/510	72/10.9/612	86/12.9/724	103/15.2/854	1.20/1.29/1.17	0.92/0.87/0.90
	600	1.49	55/9.0/507	68/11.0/620	82/13.1/742	97/15.5/875	115/18.2/1027	1.25/1.37/1.23	0.90/0.84/0.88
	650	1.62	63/10.9/621	77/13.3/758	93/15.9/905	110/18.7/1064	129/21.8/1243	1.39/1.57/1.38	0.87/0.81/0.85
	700	1.75	73/13.8/786	90/16.8/957	107/19.9/1139	127/23.4/1336	149/27.2/1555		0.83/0.75/0.80
	750	1.89	113/25.8/1418	138/31.5/1728	167/37.9/2084	201/45.9/2515			0.59/0.47/0.52
	CMBT SPD KIAS/MACH		135/32.5/1759	160/38.2/2073	186/44.1/2399	214/50.1/2732	245/56.3/3078	1.13/1.10/0.96	0.62/0.52/0.58
			753/1.90	752/1.90	752/1.90	751/1.90	750/1.89	0.90/0.89	1.06/1.07

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 50	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	9/0.9/55	12/1.2/70	15/1.5/88	19/1.9/111	25/2.4/144	1.08/1.12/1.07	0.95/0.91/0.92
	300	0.79	18/1.9/108	22/2.4/135	27/2.9/167	34/3.6/205	42/4.5/257	1.08/1.12/1.07	0.95/0.91/0.92
	350	0.91	24/2.9/159	30/3.5/198	37/4.3/242	45/5.2/293	56/6.4/359	1.08/1.12/1.07	0.95/0.91/0.92
	400	1.02	32/4.0/221	39/4.9/273	48/6.0/331	58/7.2/398	70/8.7/481	1.09/1.14/1.08	0.95/0.90/0.92
	450	1.13	40/5.4/301	49/6.7/370	60/8.1/447	72/9.6/534	86/11.5/639	1.13/1.19/1.11	0.94/0.90/0.91
	500	1.25	47/6.9/387	58/8.5/475	71/10.2/571	84/12.2/679	101/14.4/806	1.19/1.28/1.17	0.93/0.89/0.90
	550	1.37	56/8.7/489	69/10.7/599	82/12.8/718	98/15.1/850	117/17.8/1003	1.28/1.40/1.27	0.91/0.86/0.88
	600	1.49	65/11.0/622	80/13.4/760	96/16.0/908	115/18.9/1072	136/22.2/1257	1.45/1.63/1.46	0.87/0.81/0.84
	650	1.62	78/14.2/811	95/17.3/989	114/20.6/1180	135/24.3/1388	160/28.3/1621		0.82/0.75/0.79
	700	1.75	107/22.4/1281	131/27.1/1549	156/32.1/1840	184/37.7/2159	216/44.0/2518		0.69/0.59/0.62
	CMBT SPD KIAS/MACH		141/32.0/1813	169/38.2/2163	198/44.2/2509	228/50.5/2867	261/57.1/3246	1.14/1.10/0.96	0.96/0.99/1.06
			707/1.77	708/1.78	708/1.78	707/1.77	707/1.77	0.89/0.88	1.11/1.13

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	11/1.1/64	14/1.4/80	17/1.7/101	22/2.2/130	30/3.0/175	1.08/1.13/1.07	0.95/0.90/0.92
	300	0.79	20/2.2/125	25/2.7/155	31/3.4/191	39/4.2/237	50/5.3/303	1.08/1.13/1.07	0.95/0.91/0.92
	350	0.91	28/3.3/185	35/4.1/228	43/5.0/277	52/6.0/338	66/7.5/420	1.08/1.13/1.07	0.95/0.91/0.92
	400	1.02	38/4.8/265	46/5.9/325	56/7.1/392	68/8.5/473	84/10.4/577	1.10/1.15/1.09	0.95/0.90/0.92
	450	1.13	50/6.9/381	61/8.4/465	73/10.1/558	88/12.1/668	107/14.5/806	1.17/1.25/1.16	0.94/0.89/0.91
	500	1.25	61/9.1/510	74/11.1/619	89/13.2/740	107/15.7/879	129/18.7/1050	1.30/1.42/1.29	0.92/0.87/0.89
	550	1.37	75/12.1/682	91/14.7/825	109/17.5/982	130/20.6/1162	155/24.4/1375	1.64/1.88/1.69	0.88/0.82/0.85
	600	1.49	95/16.9/959	115/20.4/1158	138/24.2/1376	163/28.4/1618	194/33.4/1901		0.80/0.73/0.76
	650	1.62	141/28.7/1663	170/34.5/1996	203/40.9/2369	240/48.3/2798	285/56.9/3299		0.63/0.54/0.56
	CMBT SPD KIAS/MACH		184/40.1/2334	218/47.1/2742	254/54.5/3170	293/62.3/3624	337/70.6/4109	1.05/0.98/0.85	1.04/1.11/1.19
			658/1.64	658/1.64	658/1.64	657/1.64	656/1.64	0.86/0.86	1.13/1.14

Figure B8-12. (Sheet 1)

MAX AB Accelerations — 30,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	13/1.3/74	16/1.6/93	20/2.0/118	27/2.6/155	39/3.8/222	1.08/1.13/1.07	0.95/0.90/0.92
	300	0.79	23/2.5/144	29/3.1/178	36/3.9/220	46/4.9/278	61/6.4/369	1.08/1.13/1.07	0.95/0.91/0.92
	350	0.91	33/3.8/214	40/4.7/262	49/5.7/319	61/7.0/392	79/8.9/503	1.08/1.13/1.07	0.95/0.91/0.92
	400	1.02	45/5.9/323	55/7.1/393	67/8.6/475	82/10.4/577	104/13.0/721	1.12/1.17/1.11	0.94/0.90/0.91
	450	1.13	65/9.2/510	79/11.2/619	95/13.5/745	115/16.2/899	144/19.9/1106	1.30/1.41/1.30	0.93/0.88/0.90
	500	1.25	84/13.0/727	102/15.7/877	122/18.7/1048	147/22.4/1254	181/27.1/1521		0.90/0.85/0.87
	550	1.37	117/20.2/1140	141/24.2/1370	169/28.9/1632	203/34.4/1945	247/41.3/2341		0.79/0.72/0.75
	CMBT SPD KIAS/MACH		210/41.7/2398	244/48.1/2764	278/54.1/3106	320/61.5/3527	371/69.9/4007	0.89/0.83/0.73	1.05/1.10/1.20
			583/1.45	582/1.44	581/1.44	579/1.44	577/1.43	0.86/0.87	1.14/1.14

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	15/1.4/85	19/1.8/108	24/2.4/139	33/3.2/191	54/5.2/310	1.09/1.14/1.08	0.95/0.90/0.92
	300	0.79	27/2.9/166	33/3.6/205	42/4.5/256	54/5.8/331	80/8.3/480	1.09/1.13/1.08	0.95/0.91/0.92
	350	0.91	38/4.4/247	46/5.4/301	57/6.6/369	72/8.3/463	101/11.2/634	1.09/1.13/1.08	0.95/0.91/0.92
	400	1.02	57/7.5/411	69/9.1/501	85/11.1/611	106/13.7/758	143/18.0/1001	1.20/1.28/1.21	0.93/0.89/0.90
	450	1.13	97/14.5/801	119/17.8/984	147/22.0/1216	186/27.8/1538	250/36.8/2046		0.89/0.84/0.85
	500	1.25	145/24.0/1351	177/29.3/1644	217/35.8/2010	272/44.5/2504	356/57.7/3247		0.80/0.74/0.76
	CMBT SPD KIAS/MACH		213/38.1/2162	248/44.0/2493	288/50.4/2853	337/58.0/3276	410/68.7/3883	0.50/0.42/0.38	1.25/1.32/1.45
			517/1.29	515/1.28	513/1.28	511/1.27	507/1.27	0.80/0.81	1.14/1.13

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	15/1.5/87	19/1.9/111	25/2.4/144	35/3.4/200	59/5.6/336	1.09/1.14/1.08	0.94/0.90/0.92
	300	0.79	28/3.0/172	35/3.7/213	44/4.7/267	57/6.1/347	86/8.9/515	1.09/1.14/1.08	0.95/0.91/0.92
	350	0.91	40/4.6/258	48/5.7/316	60/6.9/388	76/8.7/489	108/12.0/680	1.09/1.14/1.08	0.95/0.91/0.92
	400	1.02	77/10.6/584	100/14.1/773					
	CMBT SPD KIAS/MACH		97/14.1/775	106/15.0/822	116/16.1/885	134/18.0/990	162/20.7/1150	0.91/0.91/0.87	0.99/0.95/0.97
			404/1.03	401/1.02	398/1.02	395/1.01	391/1.00	0.98/0.98	1.01/1.01

Figure B8-12. (Sheet 2)

MAX AB Accelerations — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	17/2.0/69	22/2.6/91	30/3.5/122	42/5.0/172	75/8.7/305	1.09/1.14/1.08	0.94/0.90/0.92
	300	0.97	30/3.8/132	39/5.0/170	50/6.4/221	68/8.6/295	107/13.3/460	1.09/1.14/1.08	0.94/0.90/0.92
	350	1.10	43/6.0/208	55/7.7/267	71/9.9/341	94/12.9/445	140/18.6/646	1.10/1.15/1.09	0.94/0.89/0.91
	400	1.24	55/8.3/290	70/10.5/369	89/13.3/466	116/17.0/597	167/23.7/830	1.12/1.18/1.11	0.94/0.89/0.91
	450	1.37	66/10.5/375	83/13.2/475	105/16.6/594	135/21.0/750	190/28.4/1012	1.17/1.25/1.15	0.93/0.88/0.90
	500	1.52	76/12.9/471	96/16.2/593	121/20.2/736	153/25.2/918	211/33.3/1208	1.23/1.33/1.22	0.91/0.86/0.89
	550	1.67	88/15.8/589	110/19.8/737	138/24.4/908	173/30.2/1121	234/39.1/1444	1.33/1.47/1.32	0.88/0.82/0.86
	600	1.83	102/19.8/749	128/24.7/933	159/30.4/1143	198/37.2/1398	263/47.2/1765		0.84/0.77/0.81
	650	2.00	141/31.7/1181	177/39.8/1480	221/49.5/1835	278/61.9/2288	369/80.2/2953		0.67/0.55/0.61
	CMBT SPD KIAS/MACH		187/46.6/1693	226/55.6/2026	270/65.2/2380	321/75.7/2768	397/89.0/3257	1.13/1.10/0.97	0.57/0.45/0.50
			658/2.02	657/2.02	655/2.01	654/2.01	652/2.00	0.90/0.89	1.02/1.02

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	17/2.1/72	23/2.7/95	31/3.7/128	45/5.3/184	86/9.9/345	1.09/1.14/1.08	0.94/0.90/0.92
	300	0.97	31/4.1/140	41/5.3/181	53/6.8/236	73/9.3/319	121/15.0/518	1.09/1.14/1.08	0.94/0.90/0.92
	350	1.10	48/6.8/234	62/8.7/301	80/11.2/388	107/14.8/513	165/22.2/771	1.11/1.16/1.10	0.94/0.89/0.91
	400	1.24	63/9.5/335	80/12.2/428	103/15.5/545	135/20.2/708	201/28.8/1010	1.15/1.21/1.14	0.93/0.89/0.90
	450	1.37	76/12.4/446	97/15.7/566	124/19.8/713	160/25.4/910	231/35.0/1252	1.23/1.32/1.22	0.92/0.88/0.90
	500	1.52	91/15.7/577	115/19.8/727	145/24.8/908	186/31.2/1142	260/41.9/1525	1.36/1.50/1.36	0.90/0.85/0.87
	550	1.67	108/20.1/754	136/25.2/944	170/31.2/1168	216/38.8/1449	295/50.8/1883		0.85/0.78/0.82
	600	1.83	135/27.8/1059	170/34.6/1318	211/42.5/1618	264/52.3/1982	351/66.5/2509		0.77/0.68/0.71
	CMBT SPD KIAS/MACH		203/48.0/1816	247/57.8/2186	298/68.5/2593	358/80.4/3039	449/95.6/3605	1.11/1.07/0.94	0.65/0.56/0.61
			623/1.91	623/1.90	622/1.90	620/1.90	619/1.89	0.88/0.88	1.07/1.08

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 22,000 LB	26,000 LB	30,000 LB	34,000 LB	38,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	21/2.5/86	28/3.3/116	39/4.6/161	63/7.3/255	86/10.2/354	1.10/1.14/1.08	0.94/0.90/0.92
	300	0.97	38/4.9/169	50/6.4/220	67/8.5/294	98/12.4/427	133/16.9/583	1.10/1.14/1.08	0.94/0.90/0.91
	350	1.10	63/9.0/310	81/11.6/402	108/15.4/534	156/21.9/757	219/31.1/1076	1.13/1.19/1.13	0.93/0.89/0.90
	400	1.24	85/13.1/461	109/16.8/592	144/22.0/773	200/30.2/1061	277/41.9/1469	1.20/1.27/1.19	0.92/0.88/0.89
	450	1.37	106/17.6/637	136/22.4/810	177/28.9/1041	241/38.6/1388	327/52.2/1872	1.40/1.54/1.42	0.91/0.86/0.88
	500	1.52	132/23.5/870	167/29.6/1095	214/37.5/1385	286/48.9/1799	380/64.6/2362		0.87/0.81/0.83
	550	1.67	171/33.5/1275	215/41.9/1589	272/52.2/1977	354/66.4/2504	462/85.4/3201		0.77/0.69/0.71
	CMBT SPD KIAS/MACH		284/64.9/2526	344/77.6/3014	413/91.3/3536	506/108.5/4186	624/130.1/4991	1.12/1.06/0.92	0.86/0.86/0.95
			584/1.78	583/1.78	582/1.77	581/1.77	579/1.76	0.85/0.85	1.14/1.15

***BASED ON 210 KIAS/0.70 MACH.**

Figure B8-13. (Sheet 1)

MAX AB Accelerations — 40,000 Feet

DATA BASIS FLIGHT TEST **CONDITIONS:** **ENGINE F110-GE-129**

- **STANDARD DAY TEMPERATURE (−56°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	25/3.0/105	35/4.1/143	52/6.1/211	92/10.8/375	78/9.6/330	1.10/1.15/1.09	0.94/0.90/0.92
	300	0.97	47/6.0/207	62/8.0/274	87/11.1/382	139/17.5/605	148/19.6/670	1.10/1.15/1.09	0.94/0.90/0.91
	350	1.10	89/13.0/450	120/17.6/609	175/25.7/891	301/44.2/1534		1.20/1.27/1.20	0.92/0.87/0.89
	400	1.24	126/19.9/703	168/26.6/938	239/37.6/1327	387/60.2/2118		1.36/1.46/1.37	0.90/0.86/0.87
	450	1.37	168/28.8/1048	222/37.8/1372	307/51.8/1877	473/78.2/2816			0.88/0.83/0.84
	500	1.52	242/45.8/1724	313/59.0/2216	422/78.4/2935	615/111.1/4126			0.75/0.68/0.69
	CMBT SPD KIAS/MACH		358/74.8/2889	439/90.1/3468	553/110.9/4239	743/142.5/5387	192/26.5/909	0.83/0.75/0.65	1.01/1.06/1.19
			521/1.58	520/1.58	518/1.57	515/1.56	310/0.99	0.82/0.83	1.18/1.19

***BASED ON 203 KIAS/0.68 MACH.**
****BASED ON 221 KIAS/0.74 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	31/3.7/128	45/5.3/183	77/9.0/312	87/10.5/364	66/8.3/284	1.11/1.16/1.10	0.94/0.90/0.91
	300	0.97	58/7.5/259	80/10.3/353	125/15.8/546	160/21.0/720		1.11/1.16/1.10	0.94/0.89/0.91
	350	1.10	178/27.5/954						
	400	1.24	264/43.5/1542						
	CMBT SPD KIAS/MACH		455/83.4/3095	173/25.4/875	165/22.1/762	187/25.1/861	185/25.5/871	0.85/0.85/0.81	4.95/6.57/7.86
			444/1.36	325/1.03	312/1.00	305/0.98	297/0.96	0.97/0.98	1.68/1.60

***BASED ON 215 KIAS/0.72 MACH.**
****BASED ON 233 KIAS/0.77 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 26,000 LB	30,000 LB	34,000 LB	38,000 LB	42,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.0/1.0/1.0	1.00/1.00/1.00
	250	0.82	33/3.9/136	48/5.7/196	87/10.1/352	89/10.8/373	65/8.3/283	1.12/1.16/1.10	0.94/0.89/0.91
	300	0.97	64/8.3/286	89/11.6/399	147/18.8/650			1.13/1.18/1.12	0.93/0.89/0.91
	CMBT SPD KIAS/MACH		98/13.7/471	120/16.4/562	170/22.4/771	184/24.6/842	181/24.7/843	1.08/1.12/1.06	0.94/0.90/0.92
			313/1.00	309/0.99	304/0.98	298/0.96	290/0.94	0.99/0.99	1.00/1.00

***BASED ON 217 KIAS/0.72 MACH.**
****BASED ON 236 KIAS/0.78 MACH.**

Figure B8-13. (Sheet 2)

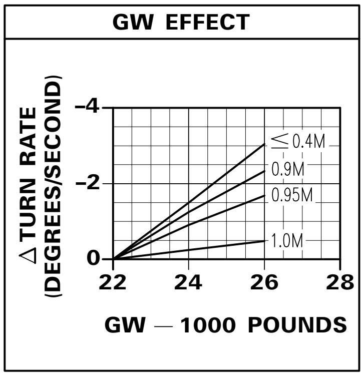
Turn Performance — Sea Level

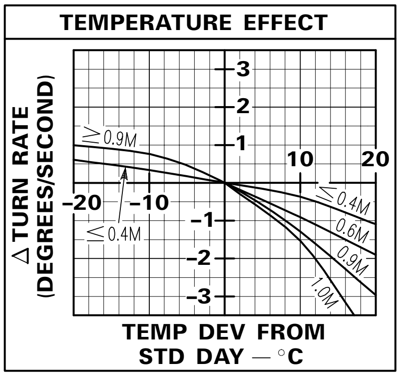
DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

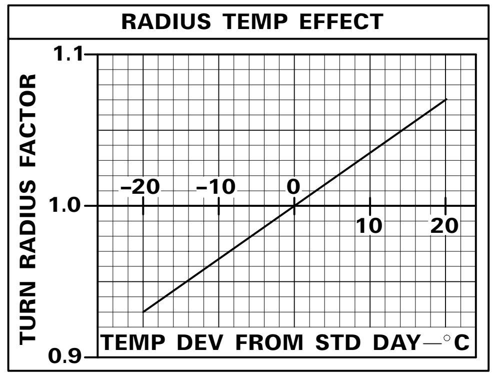
CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







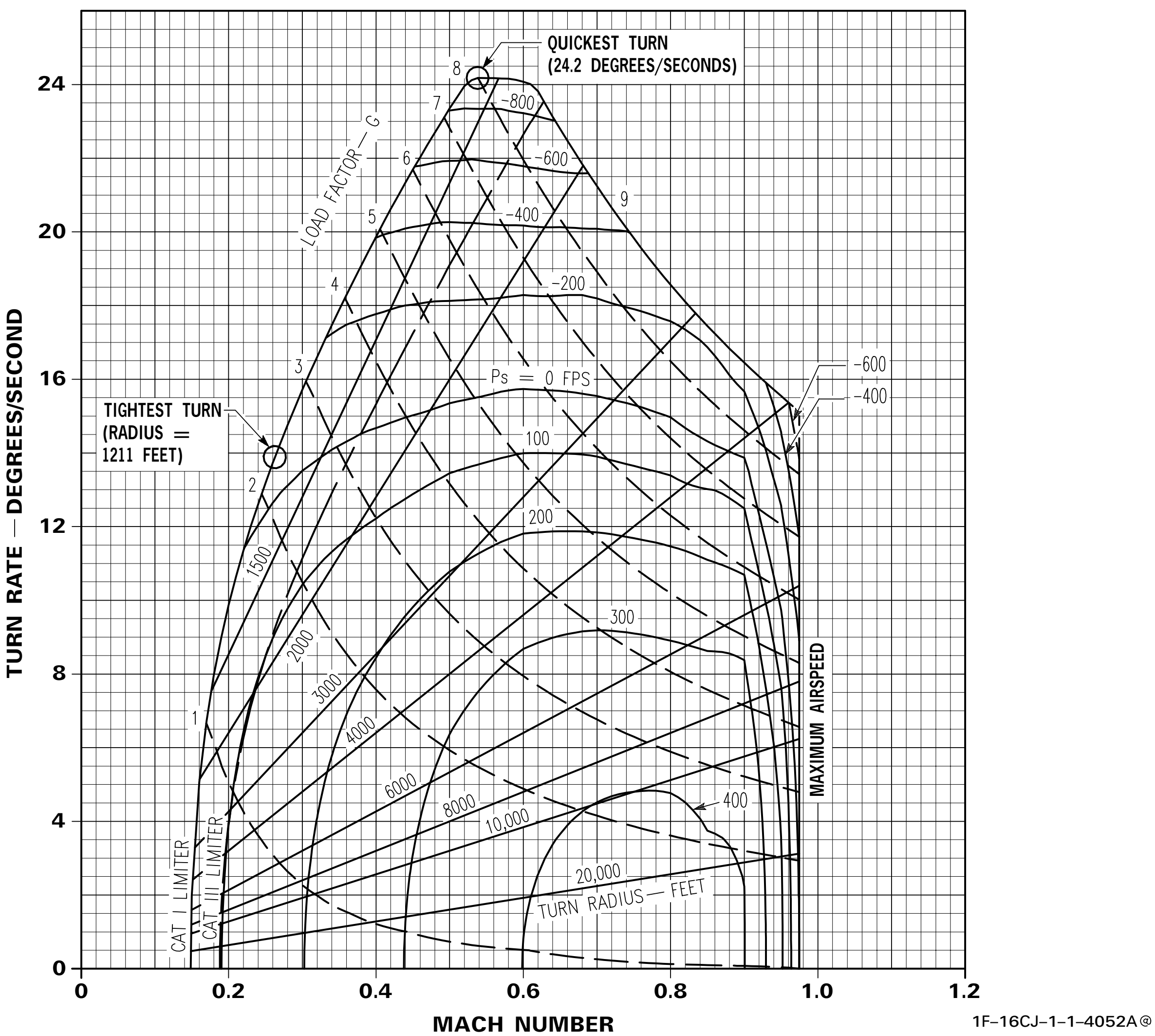


Figure B8-14.

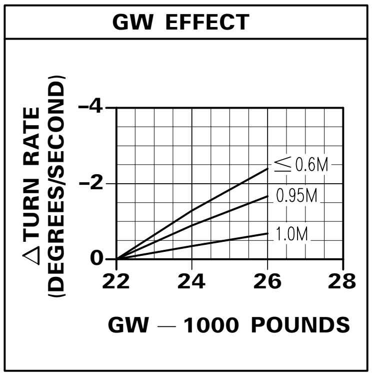
Turn Performance — 5000 Feet

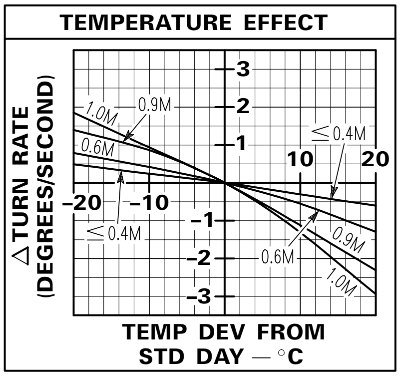
DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

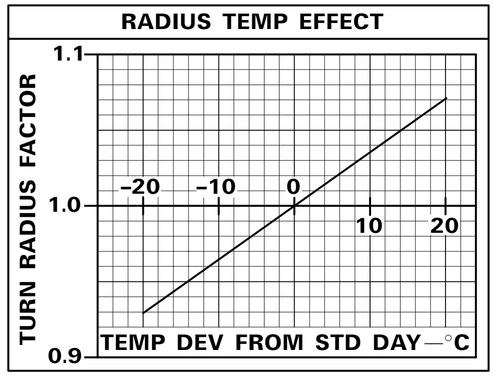
CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







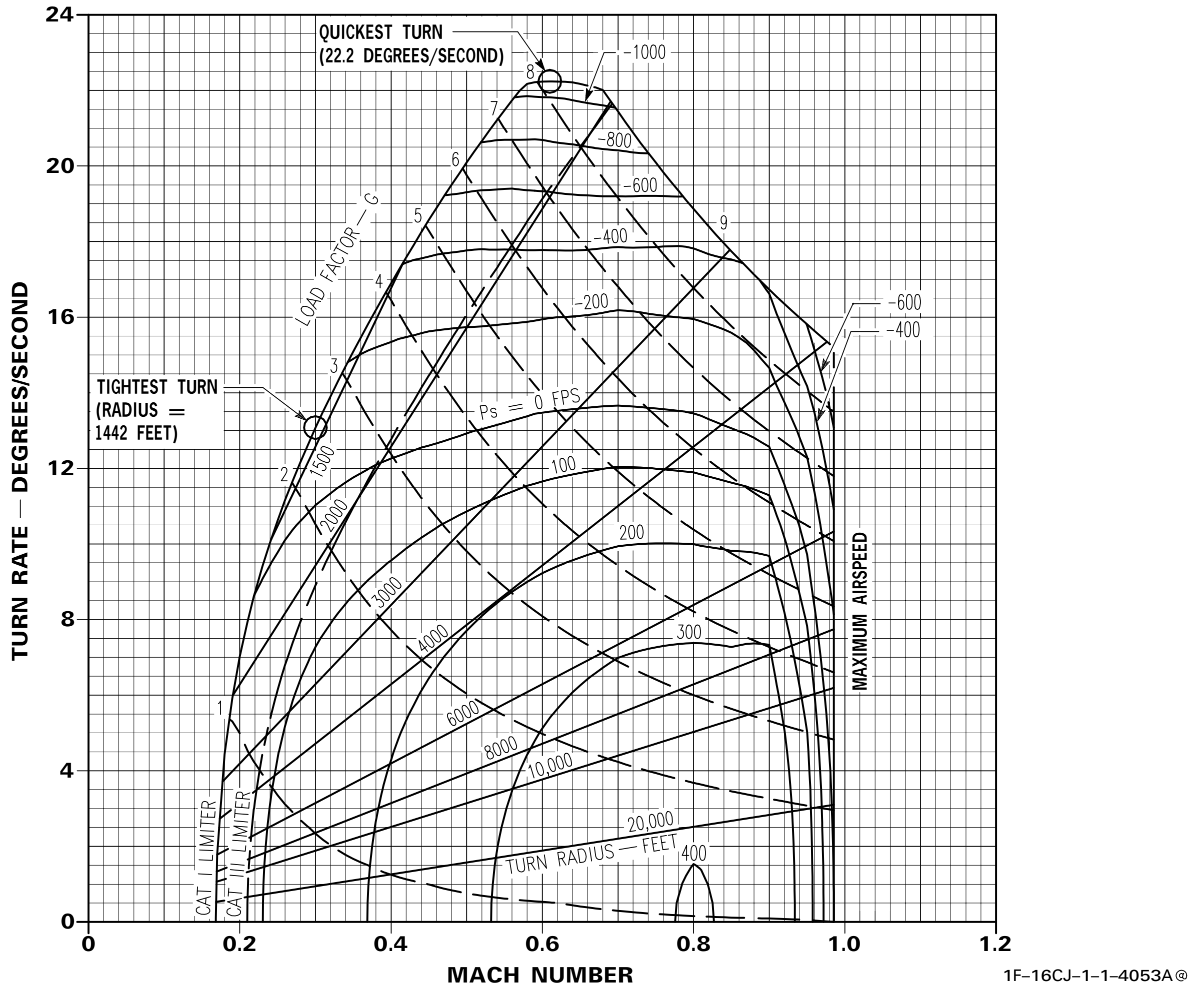


Figure B8-15.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

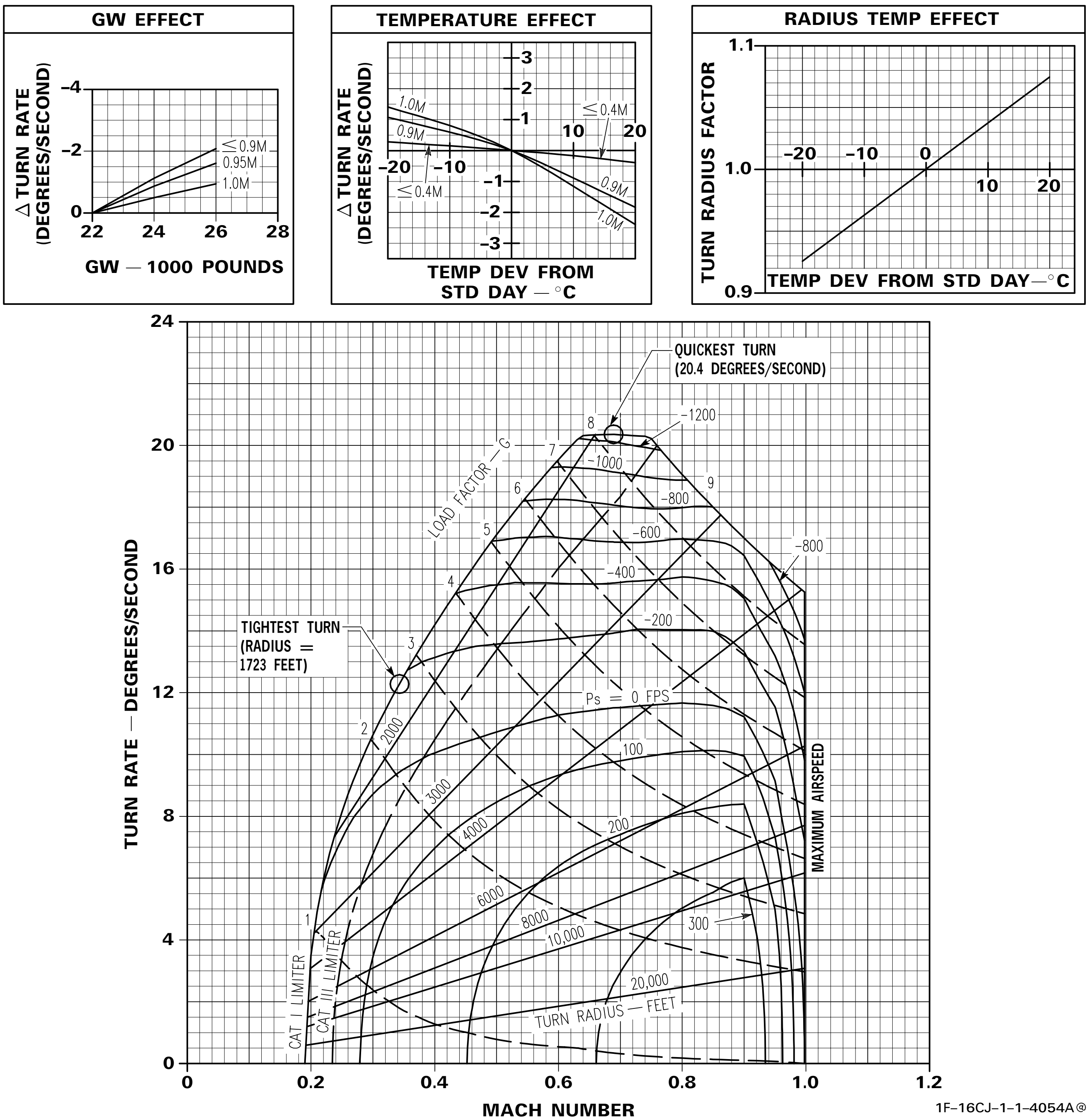


Figure B8-16.

Turn Performance — 15,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

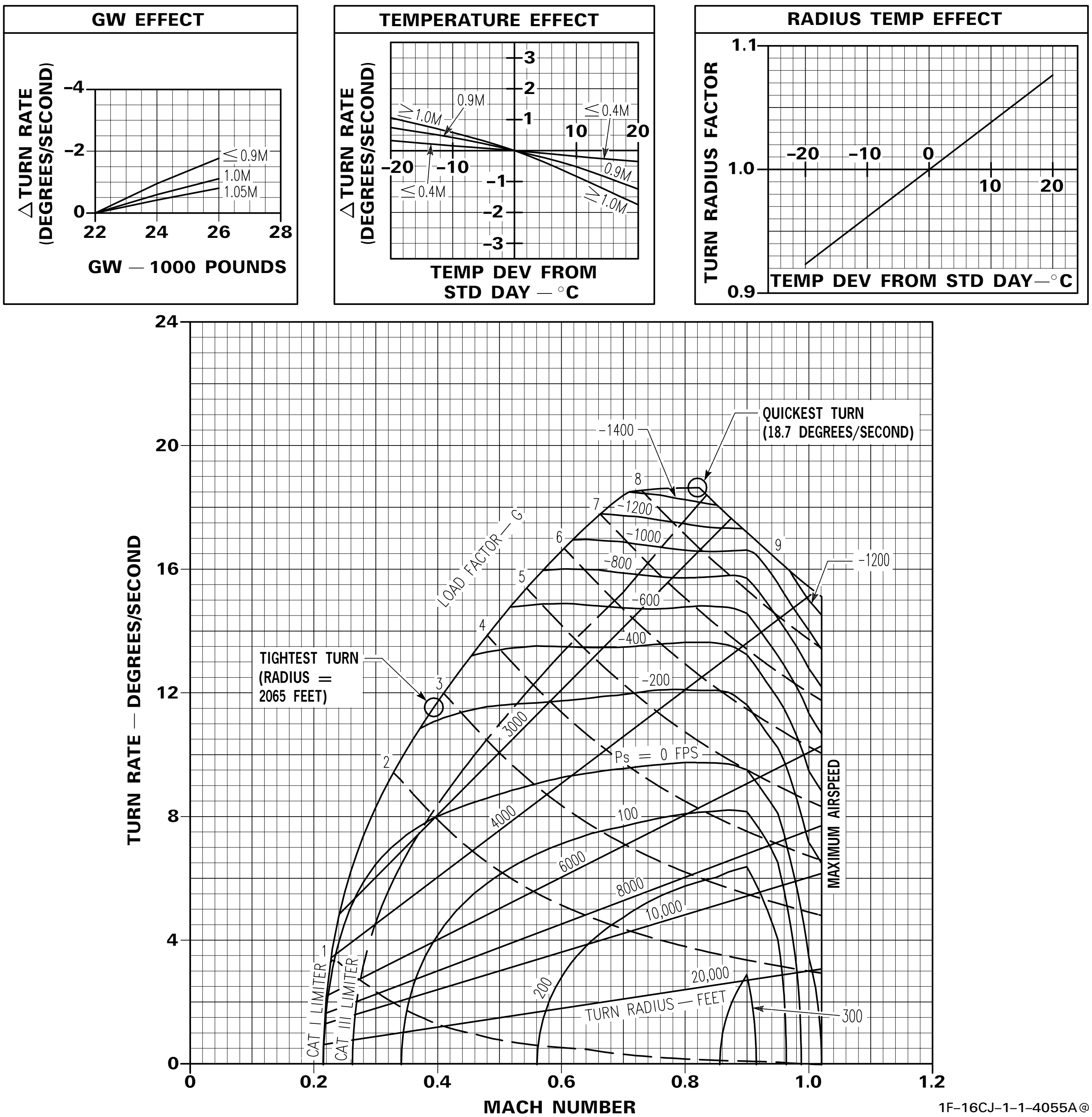


Figure B8-17.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:

- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

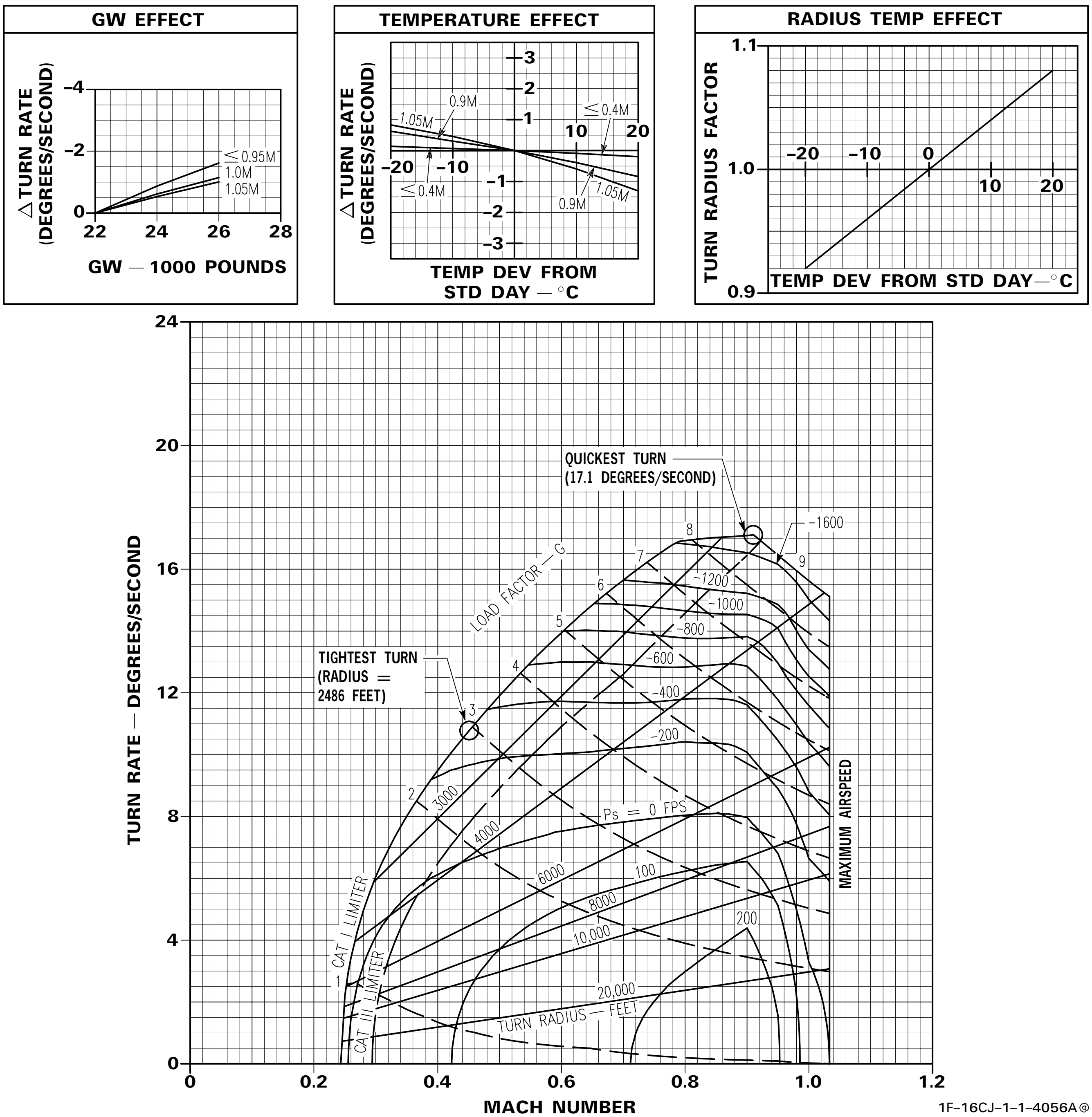


Figure B8-18.

Turn Performance — 25,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:

- **DRAG INDEX = 0**
- **GW = 22,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MIL**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

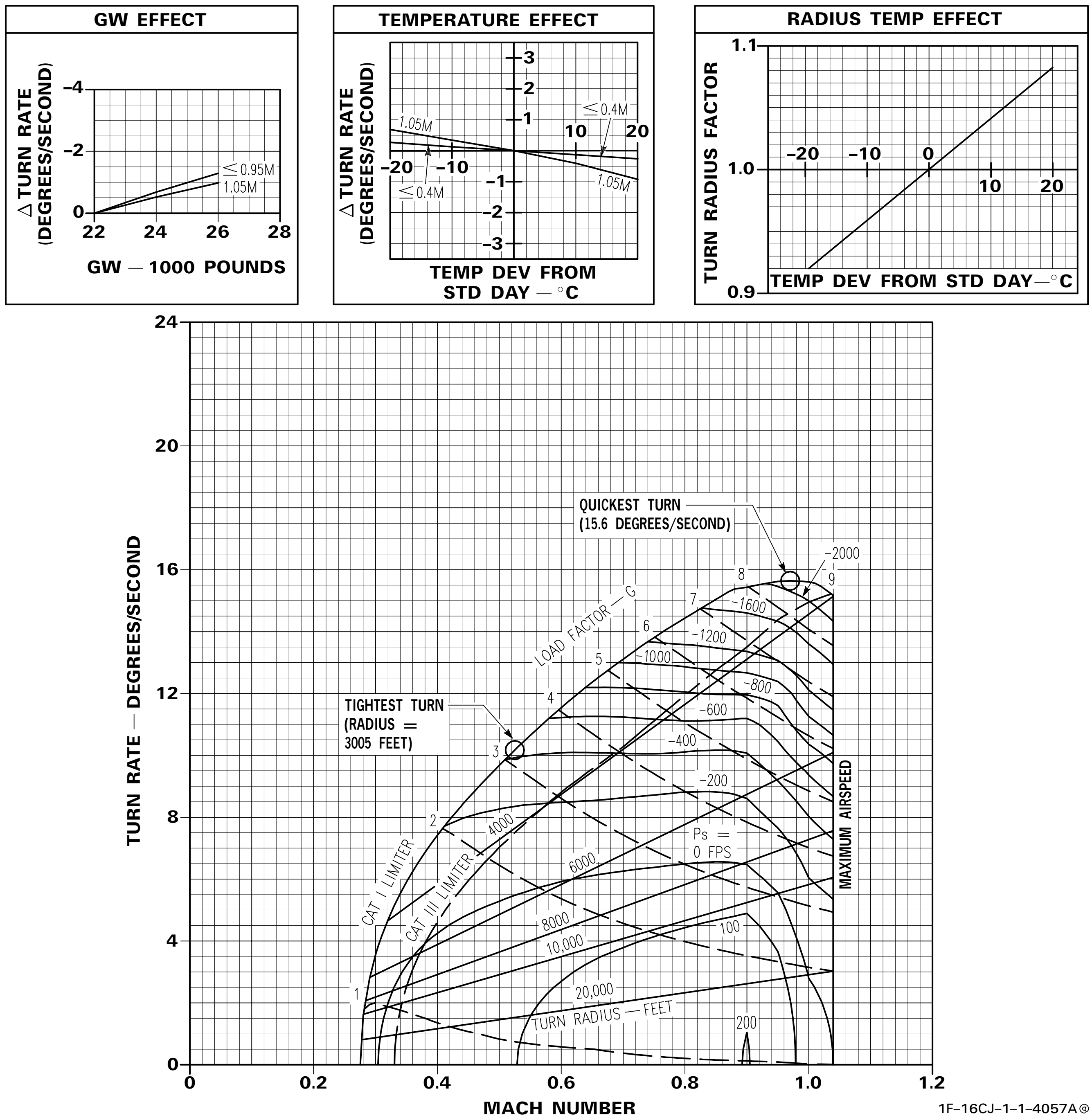


Figure B8-19.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

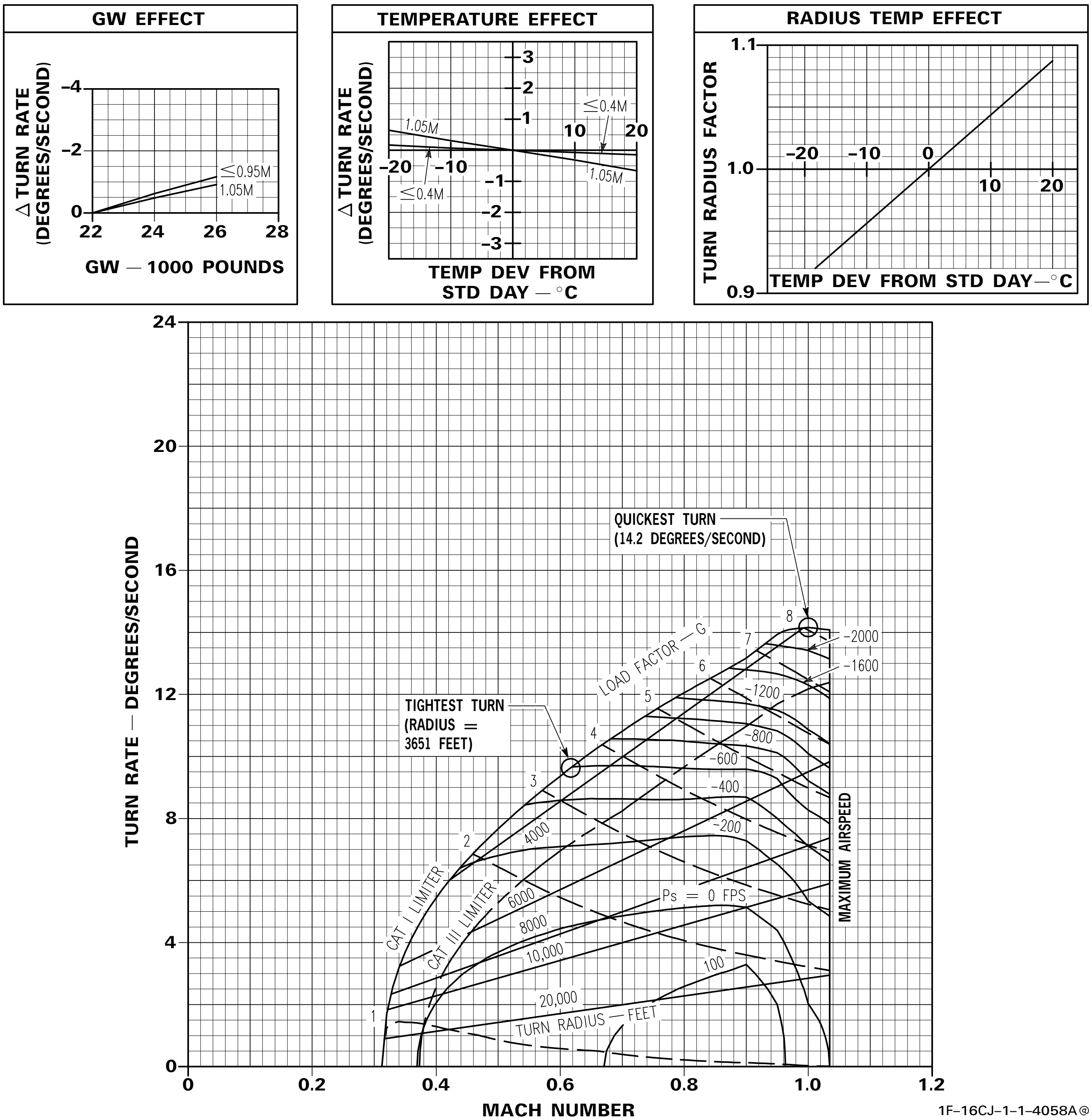


Figure B8-20.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F110-GE-129**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

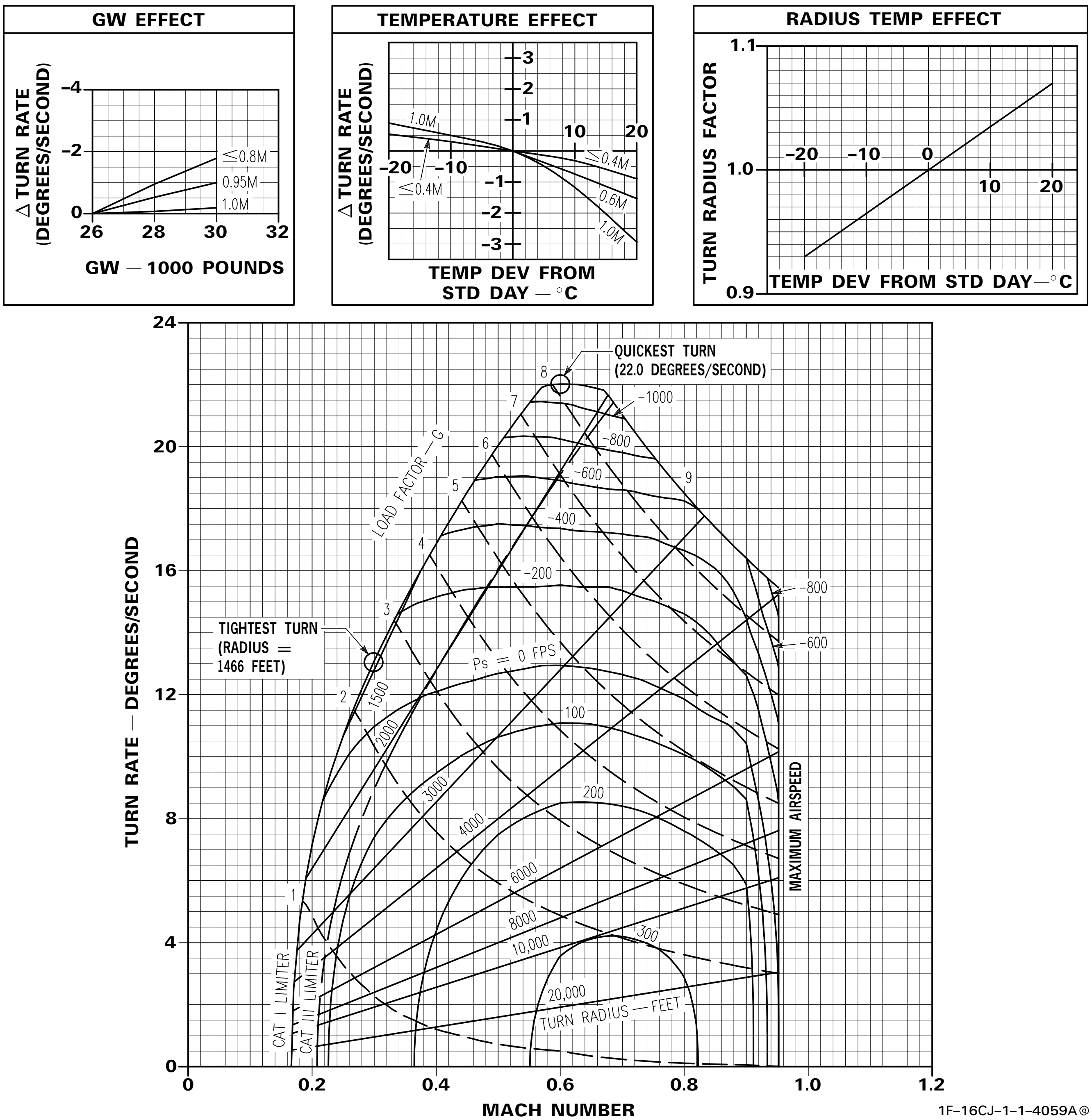


Figure B8-21.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

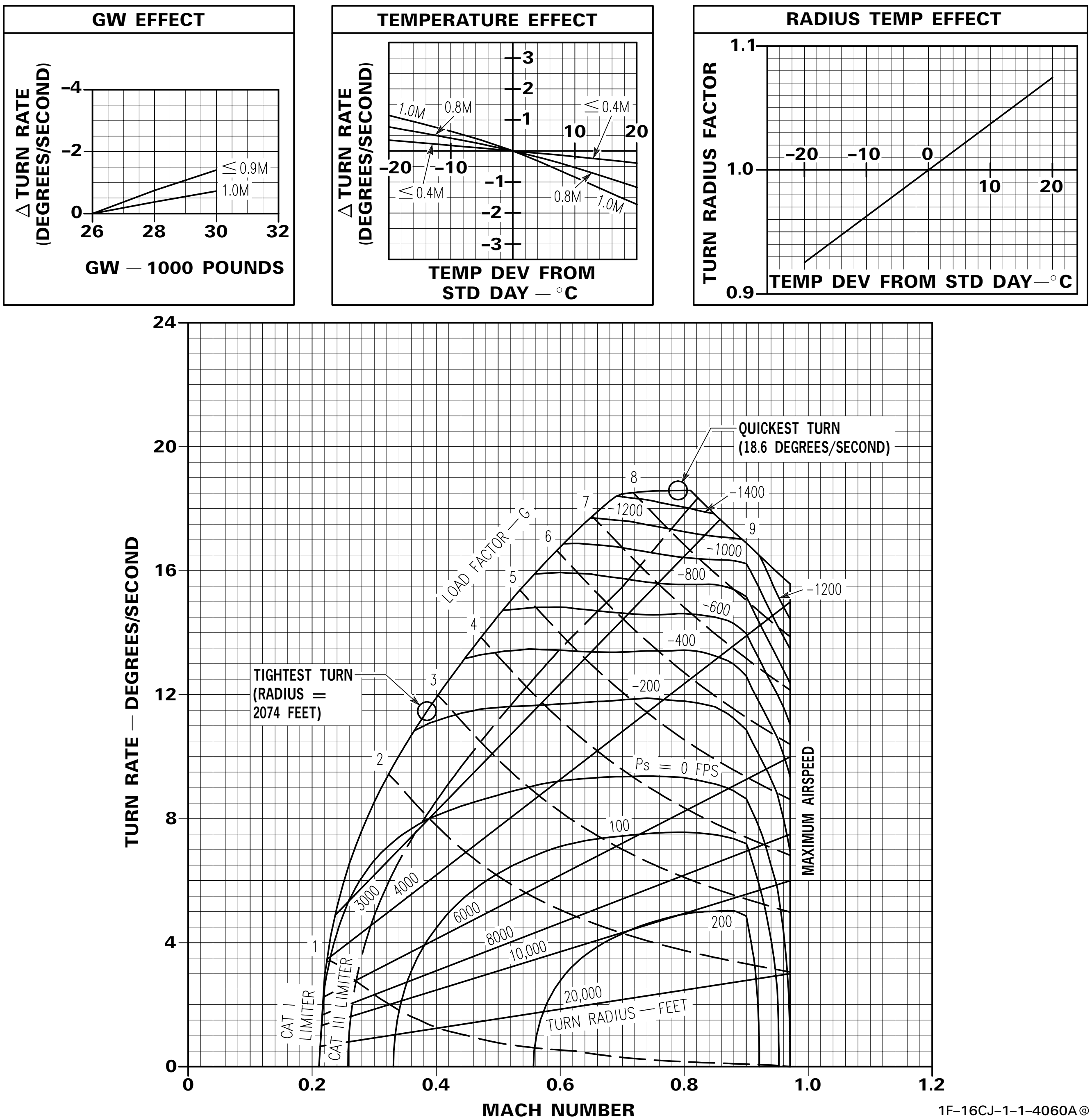


Figure B8-22.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

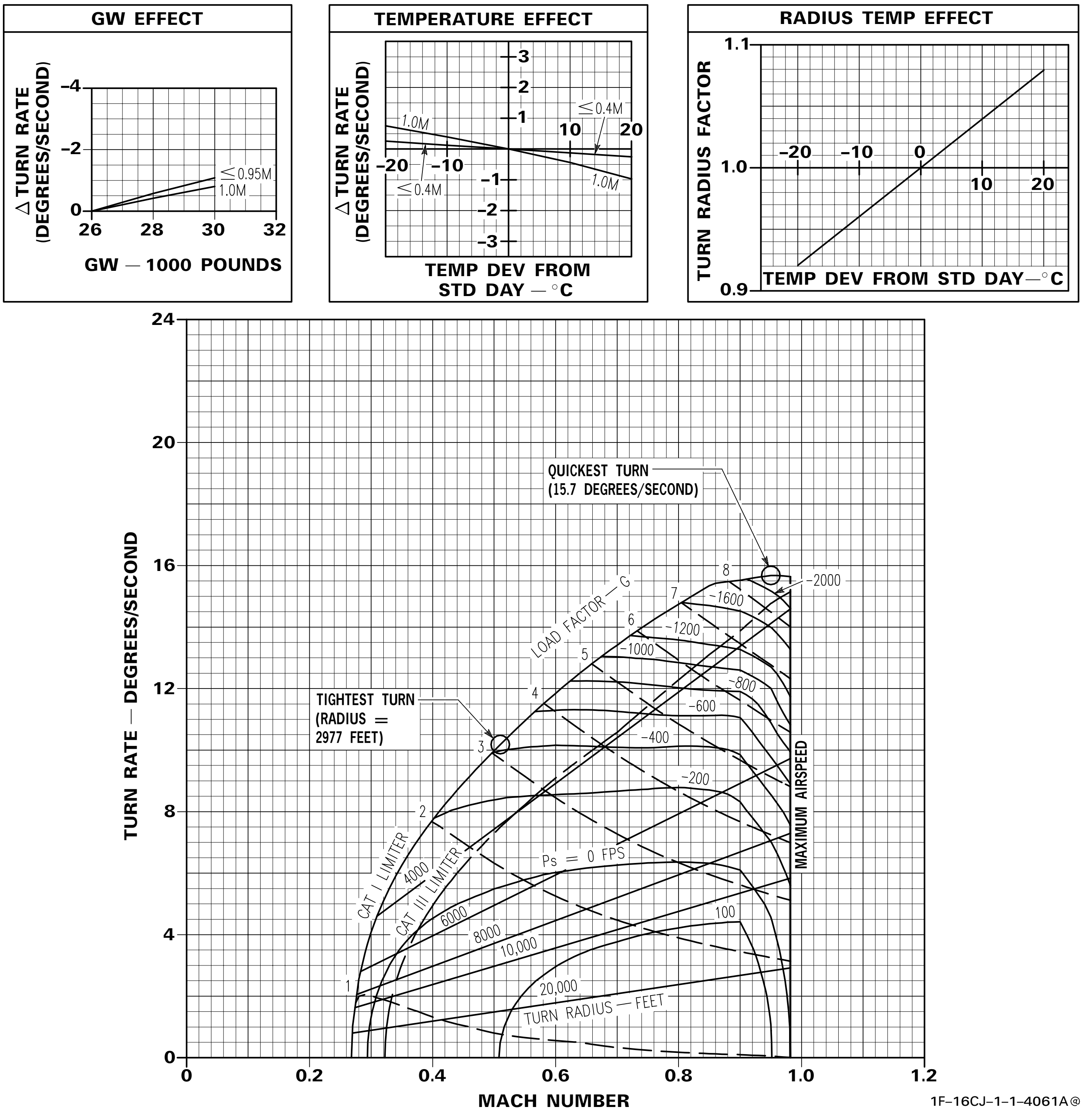


Figure B8-23.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

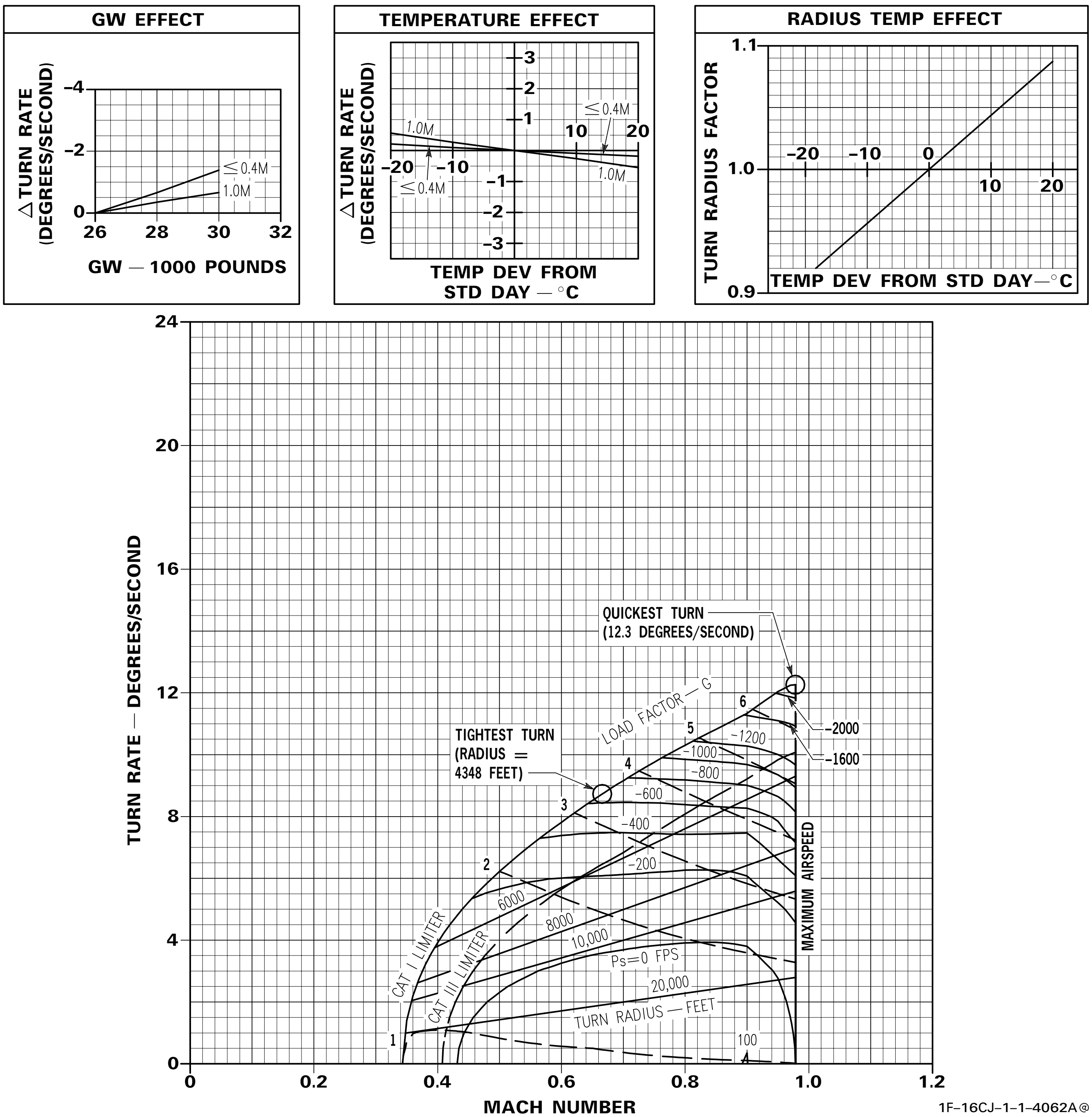


Figure B8-24.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST

ENGINE F110–GE–129

CONFIGURATION:

- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

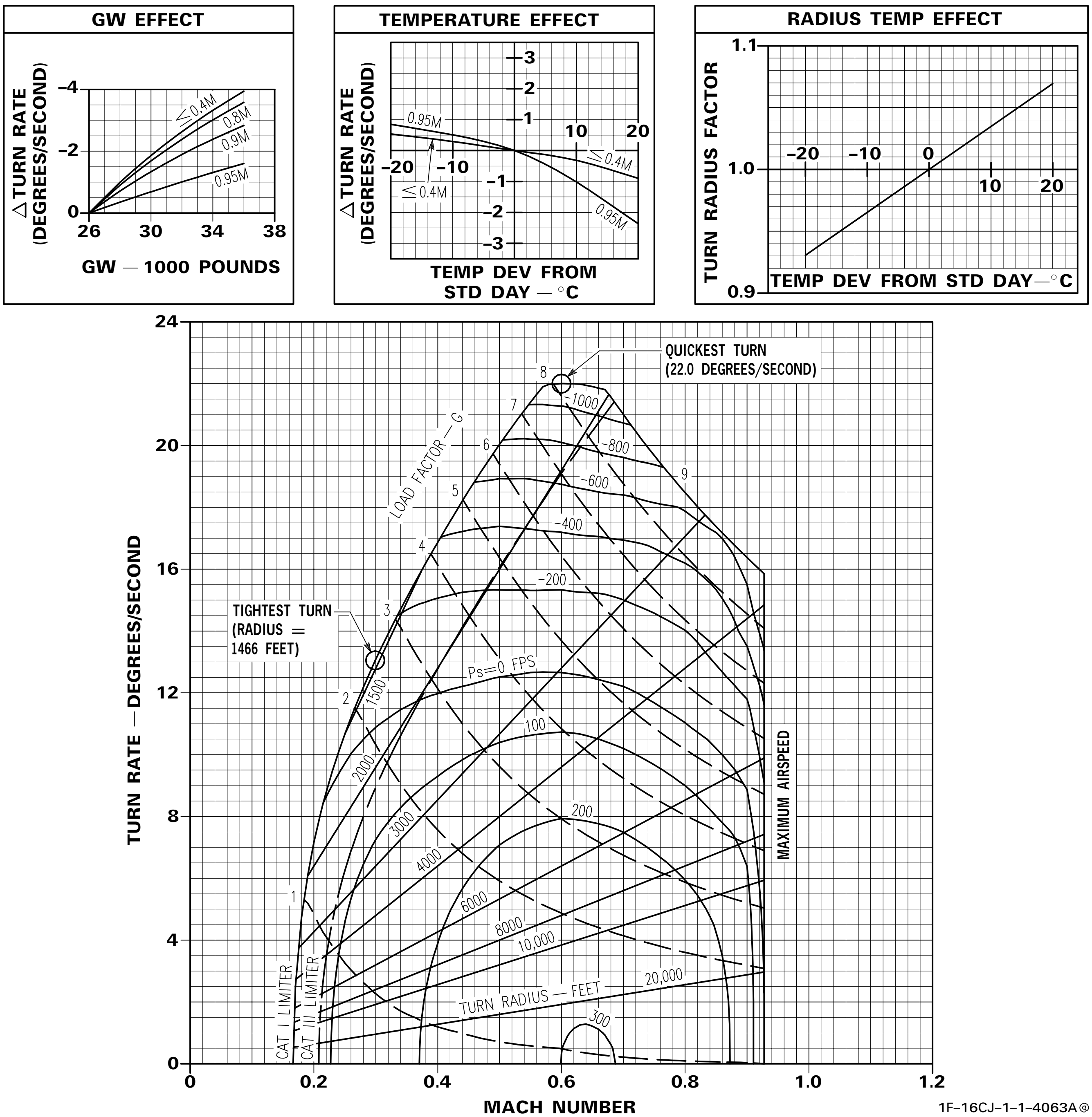


Figure B8-25.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

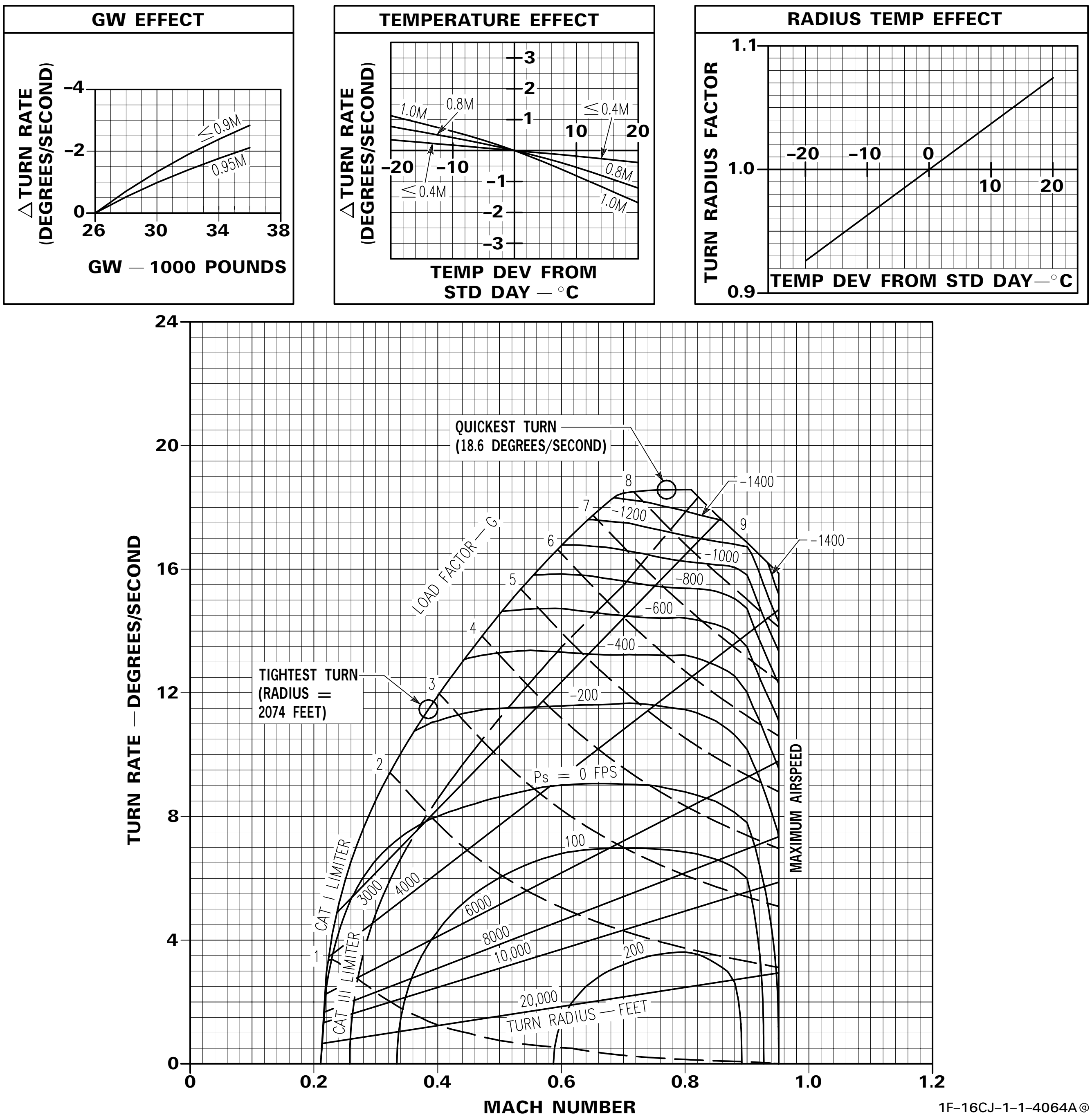


Figure B8-26.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

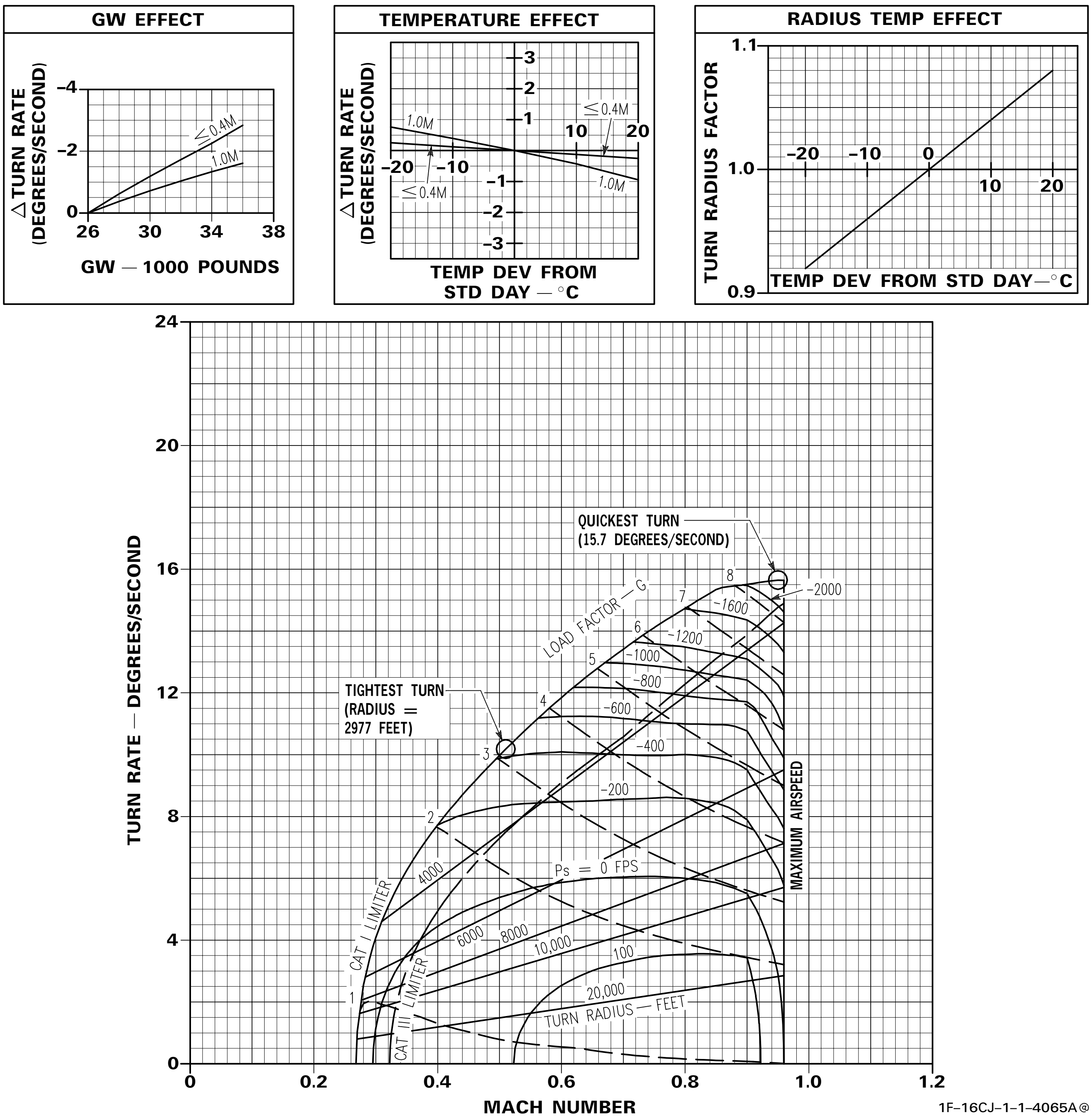


Figure B8-27.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

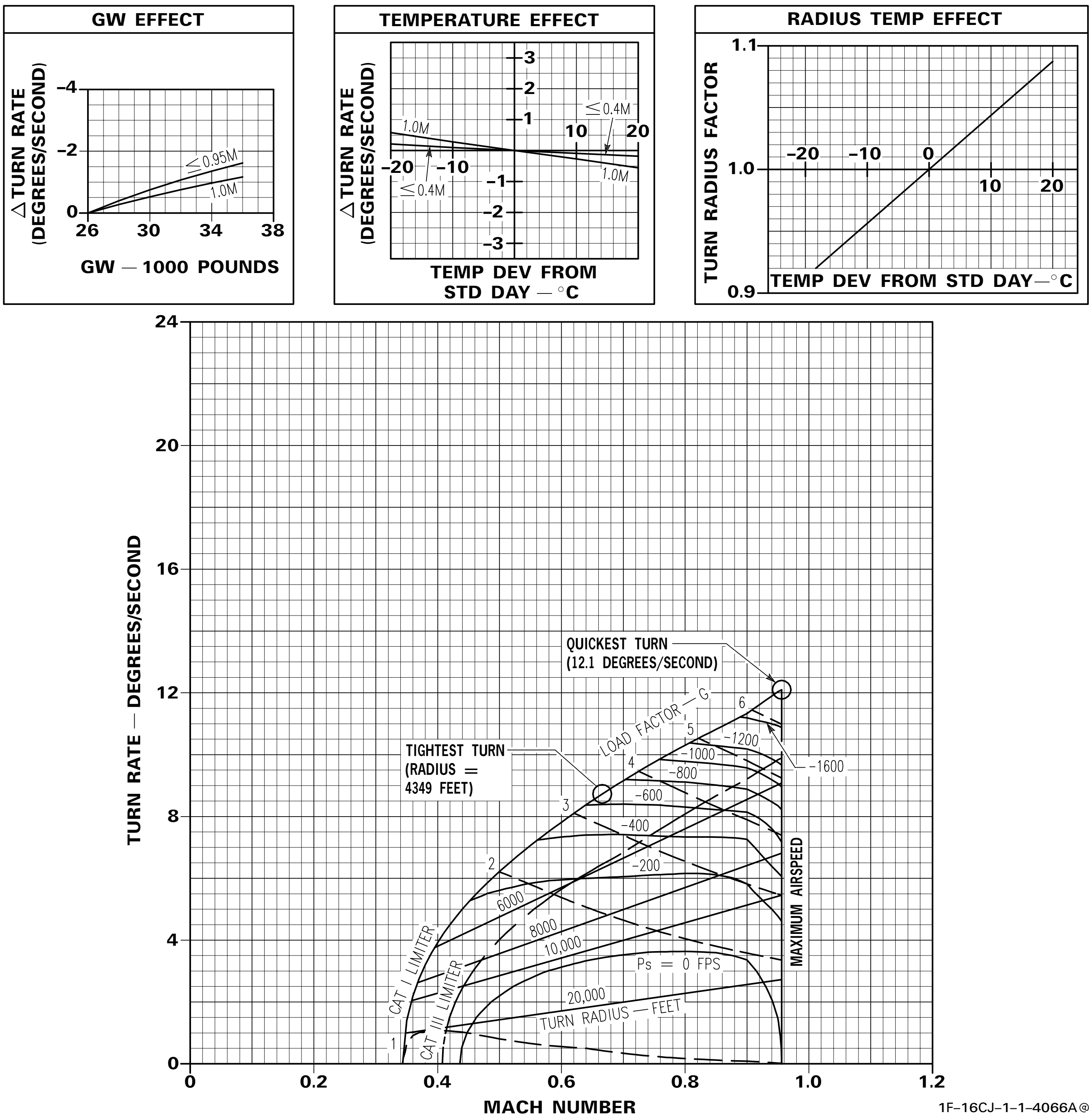


Figure B8-28.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

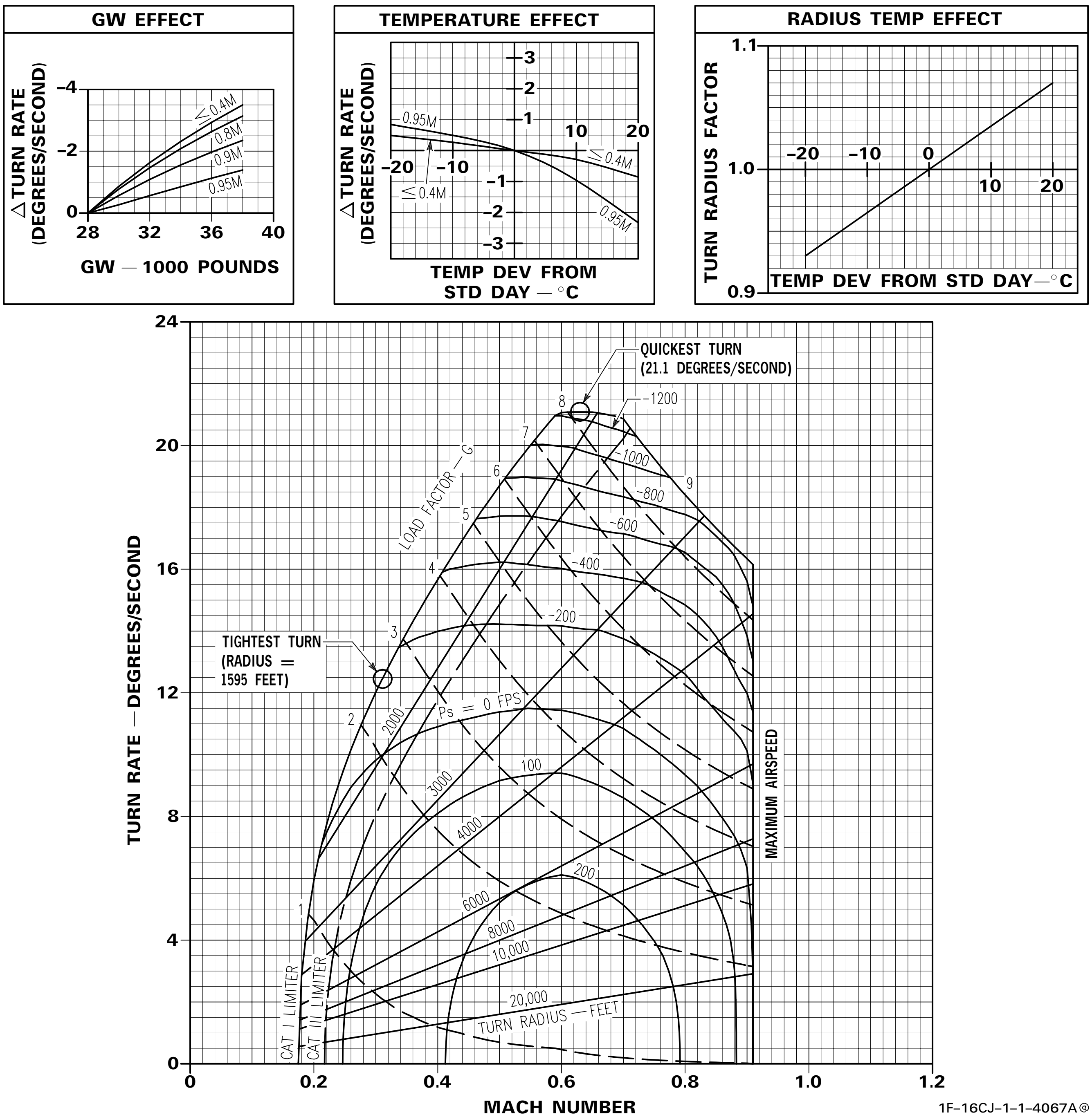


Figure B8-29.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

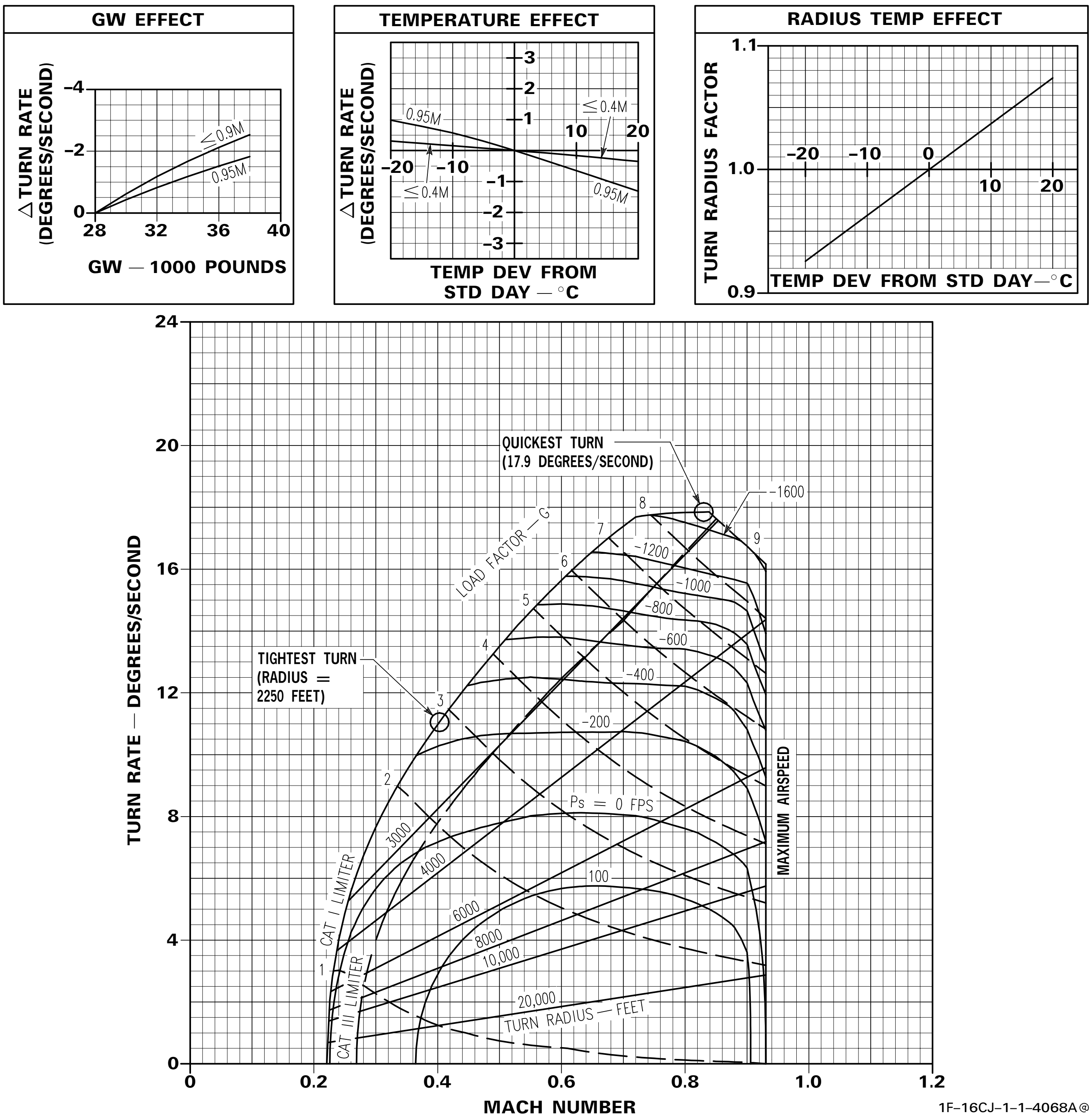


Figure B8-30.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

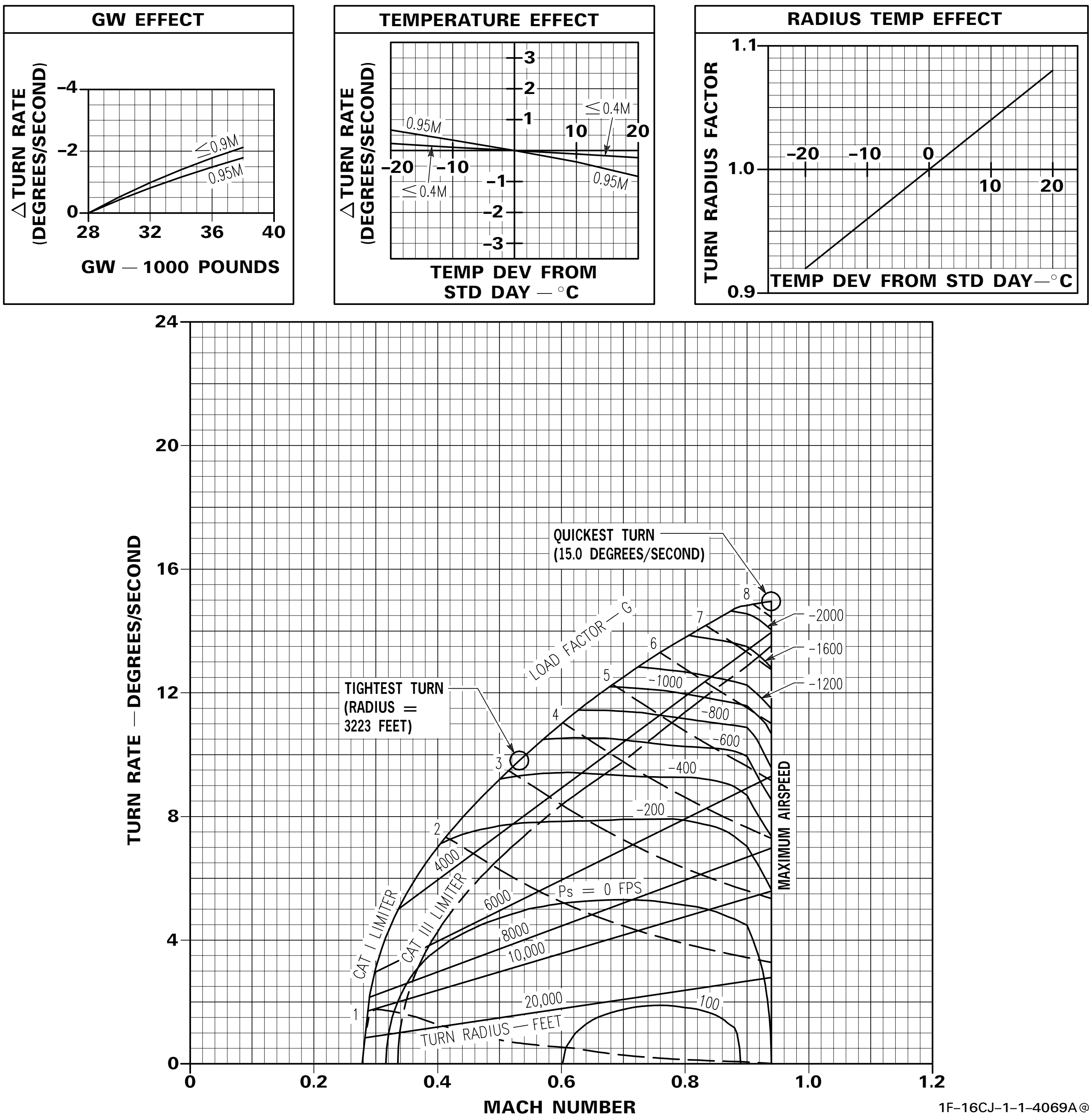


Figure B8-31.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST

ENGINE F110–GE–129

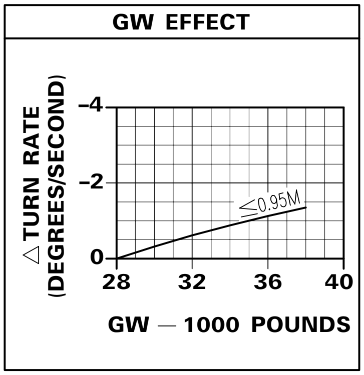
CONFIGURATION:

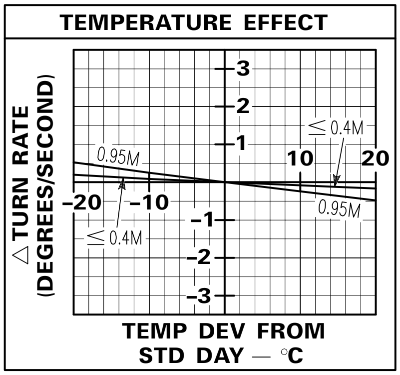
- DRAG INDEX = 150
- GW = 28,000 POUNDS

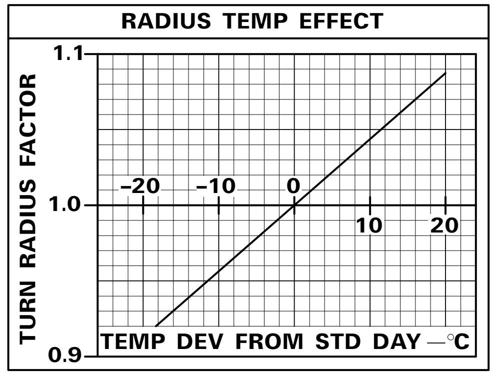
CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







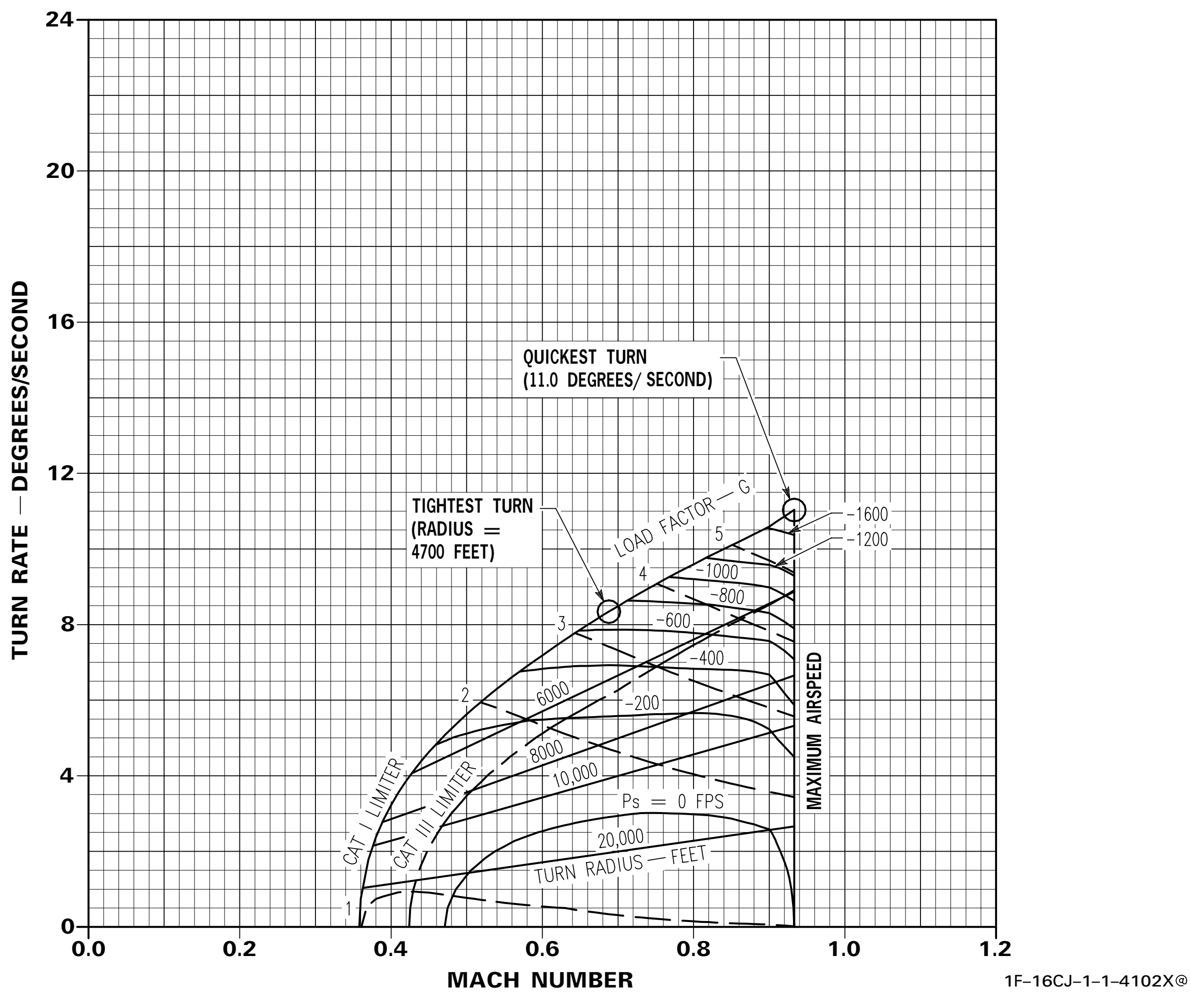


Figure B8-32.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

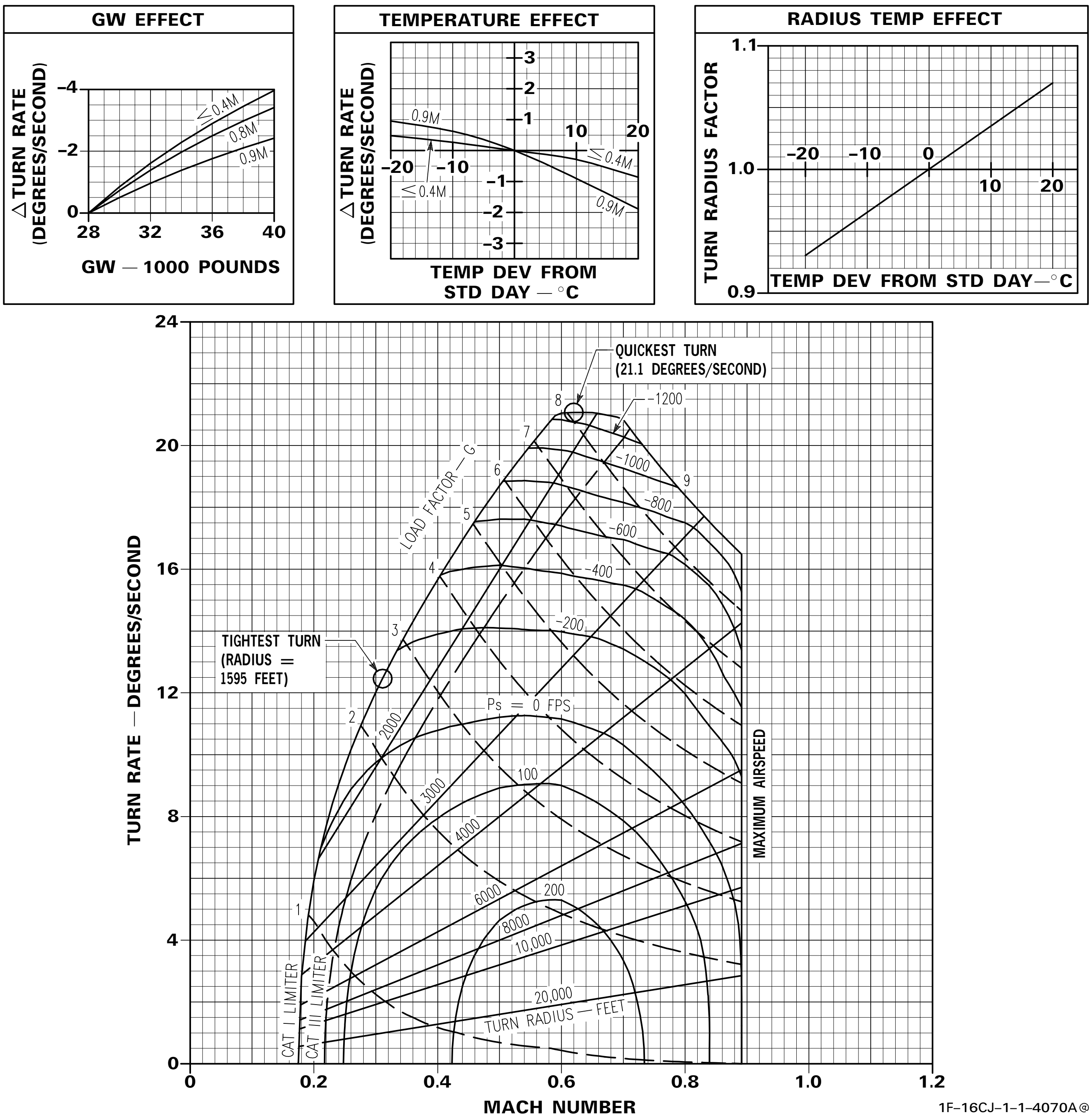


Figure B8-33.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

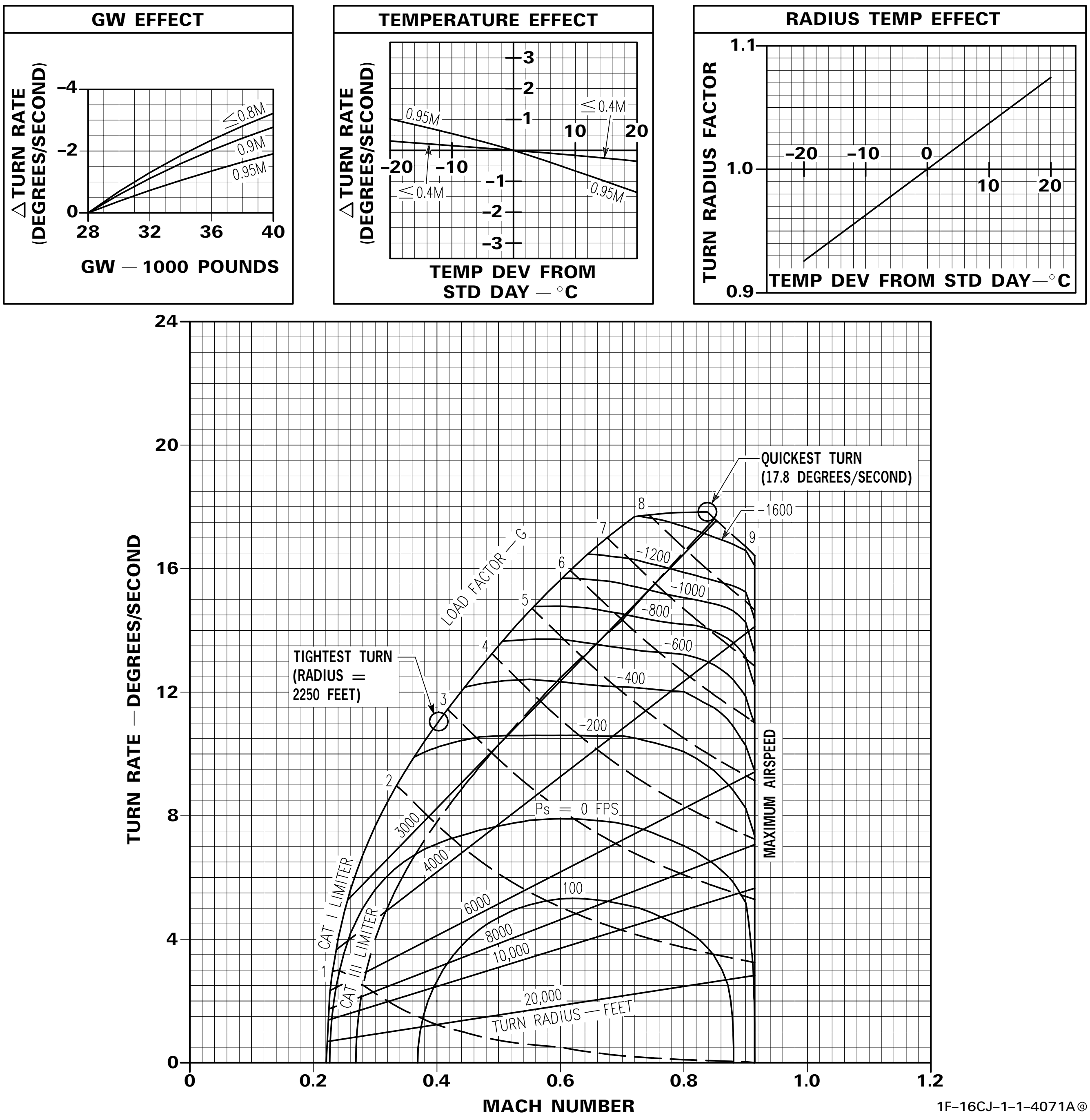


Figure B8-34.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

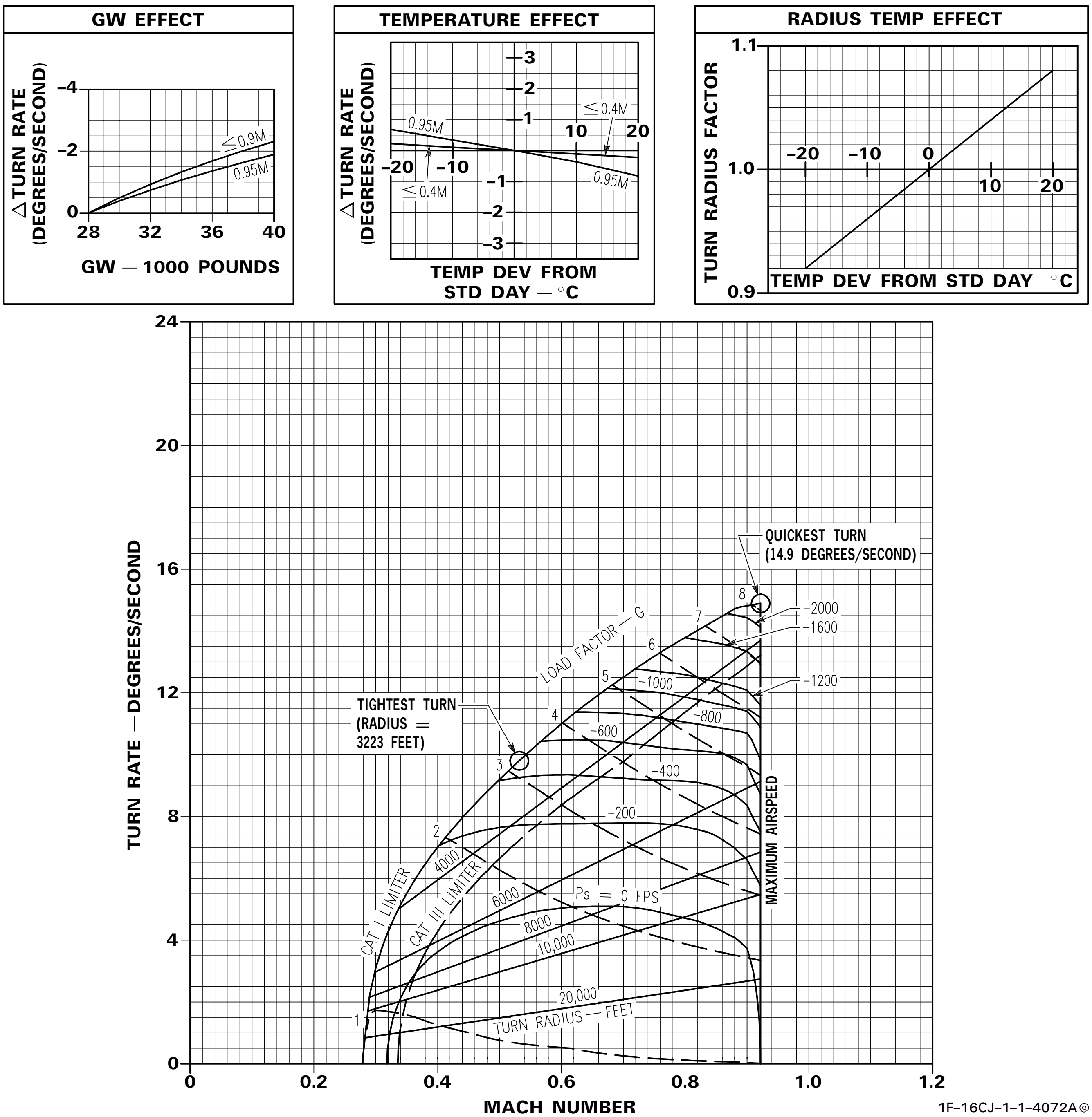


Figure B8-35.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

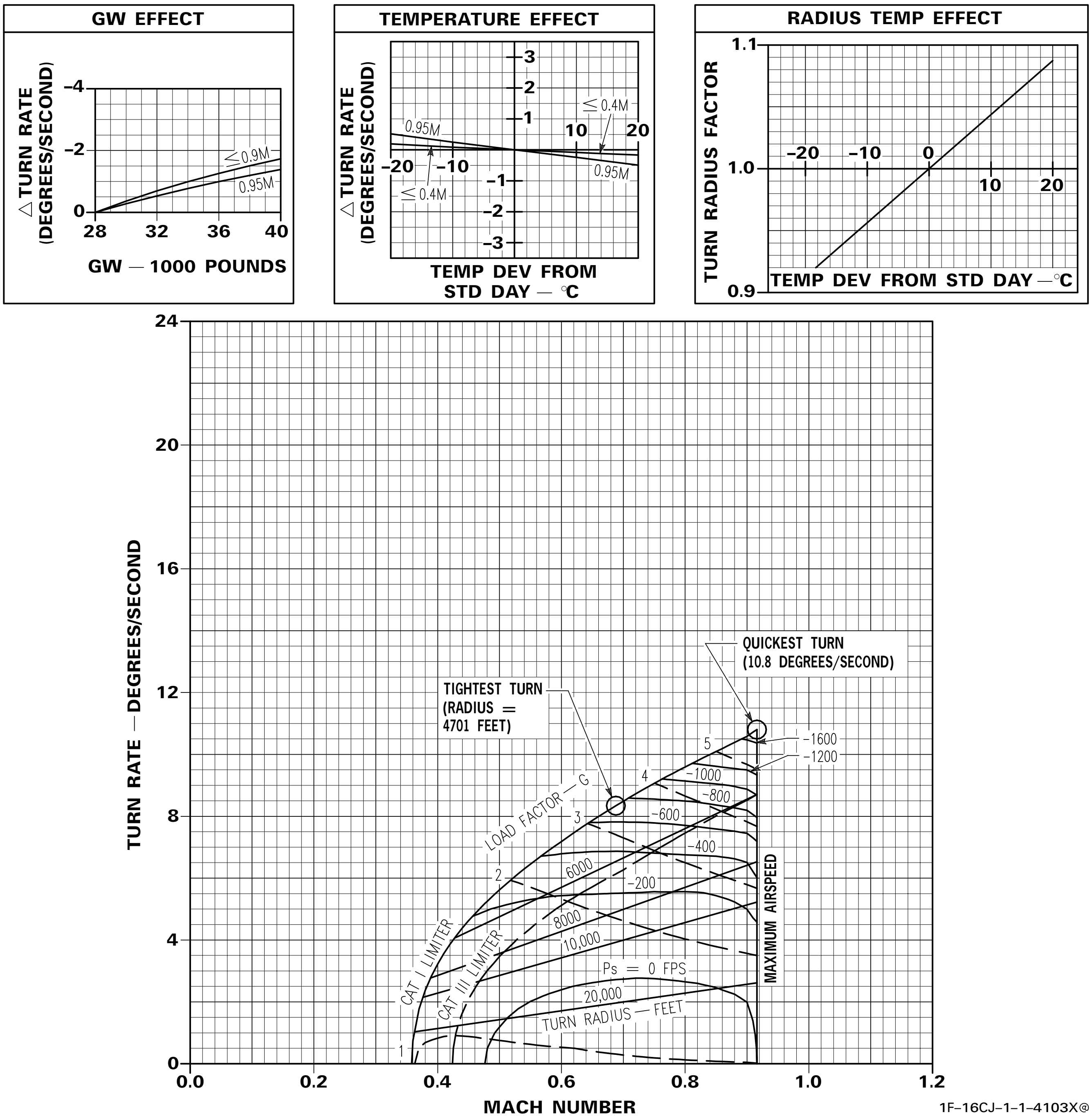


Figure B8-36.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:

- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

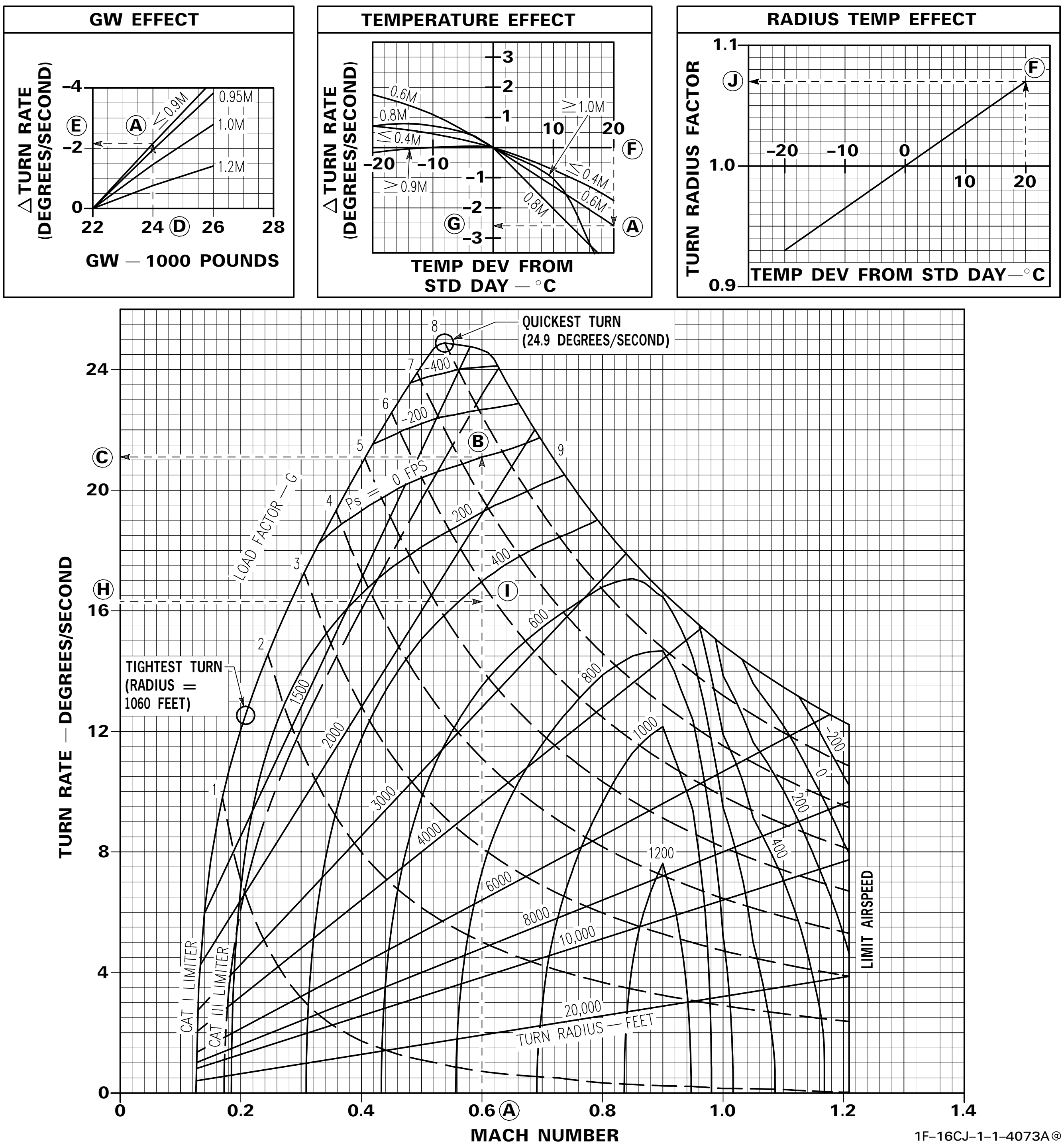


Figure B8-37.

Turn Performance — 5000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

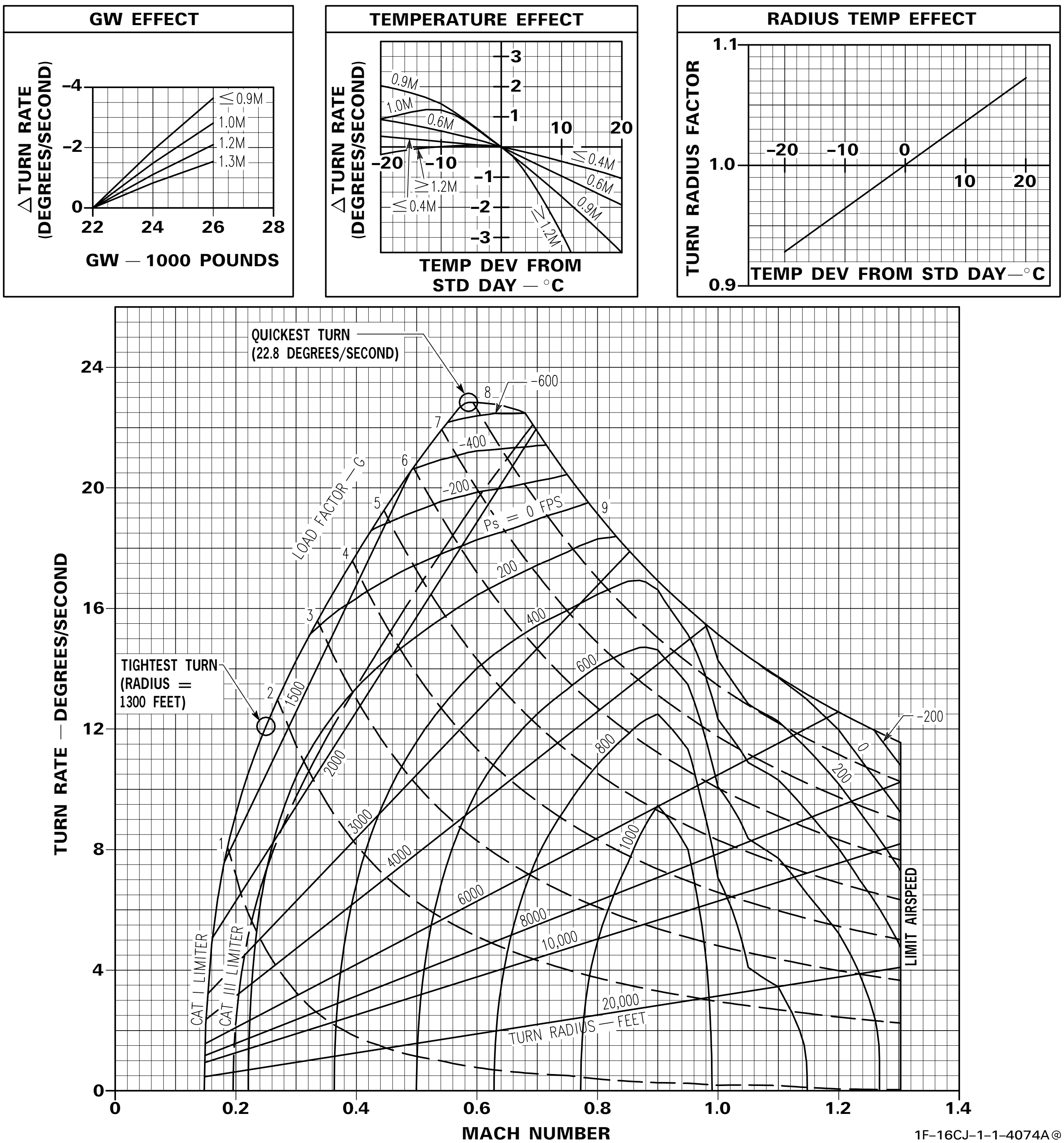


Figure B8-38.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

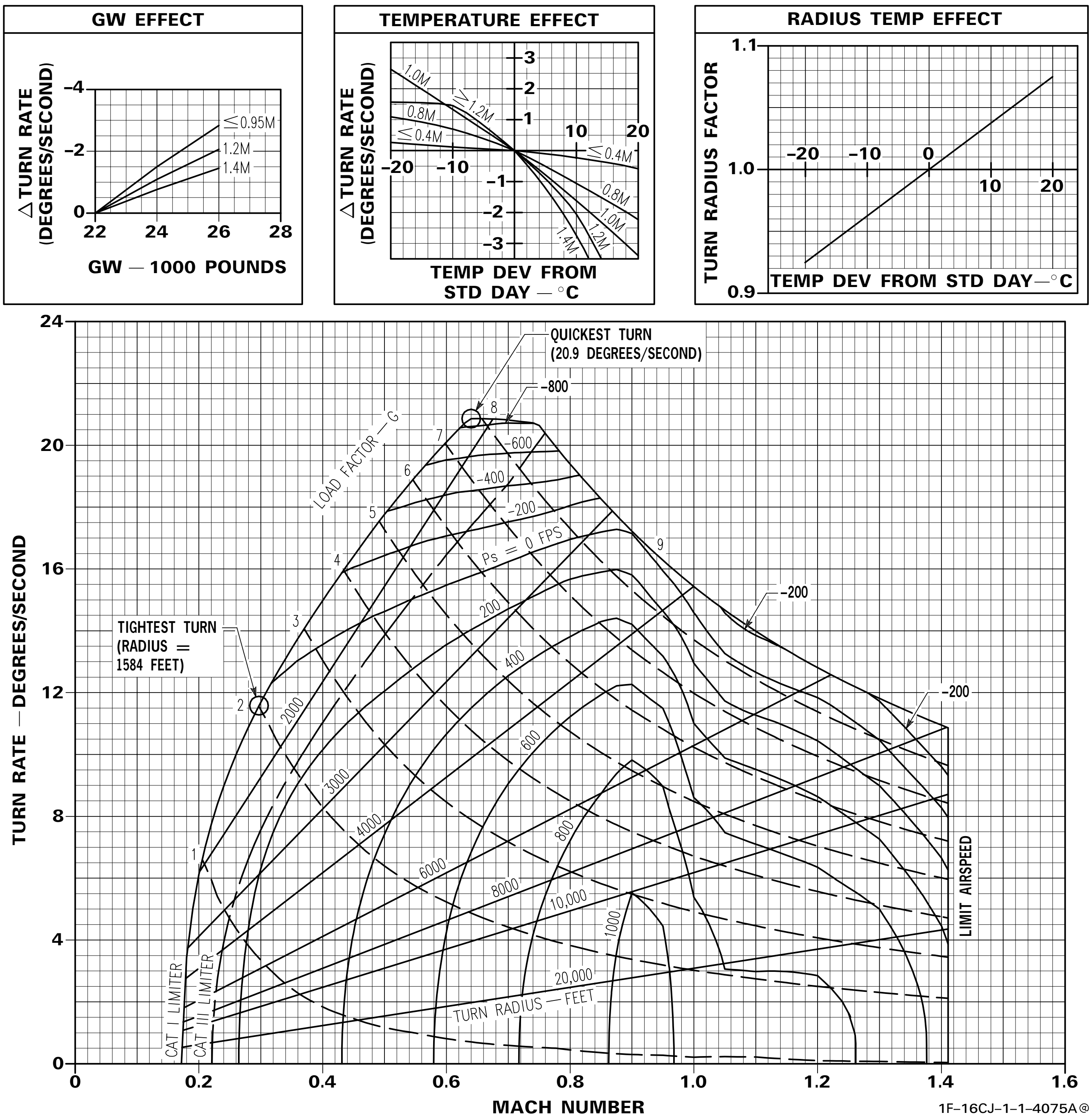


Figure B8-39.

Turn Performance — 15,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

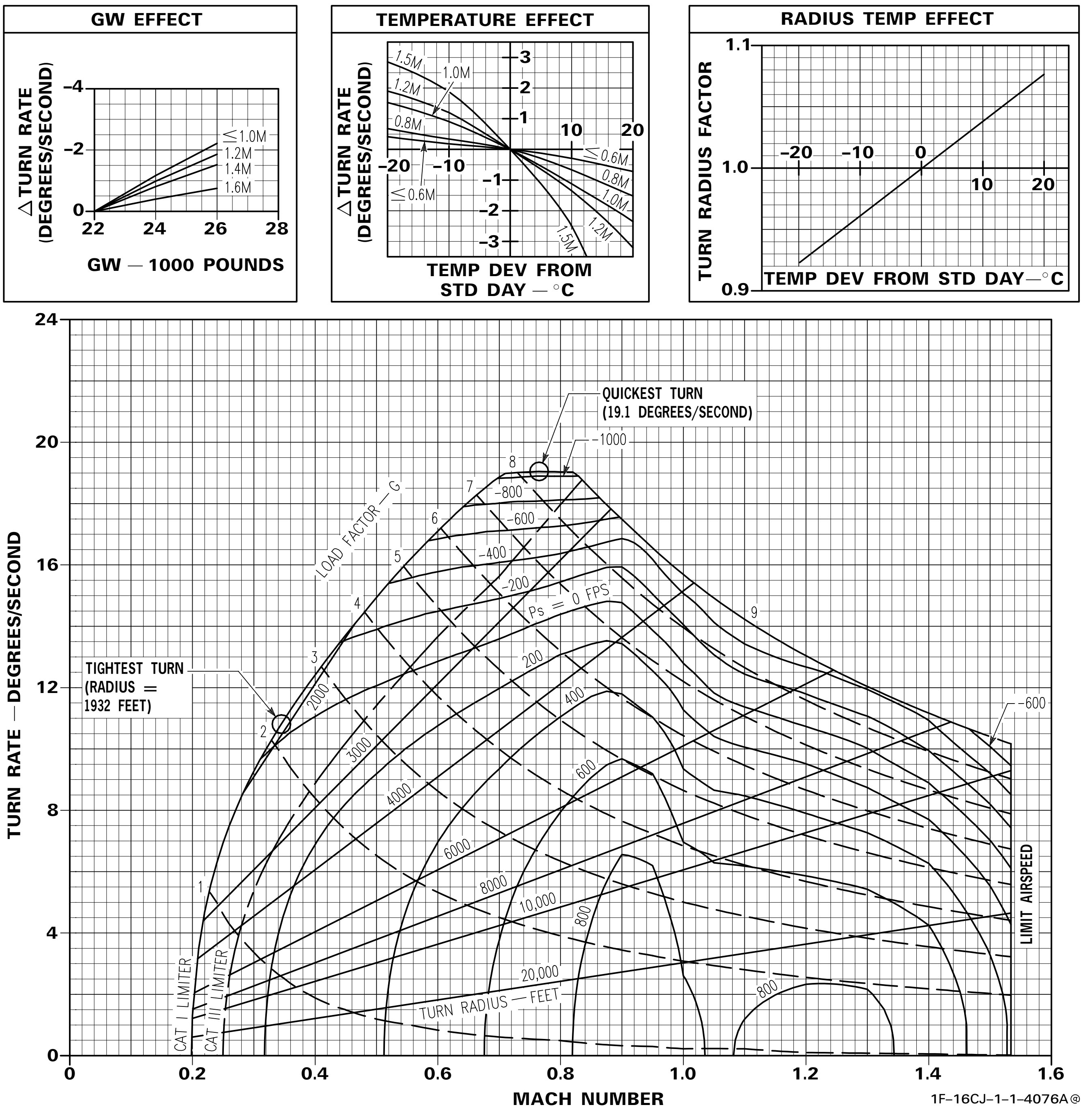


Figure B8-40.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

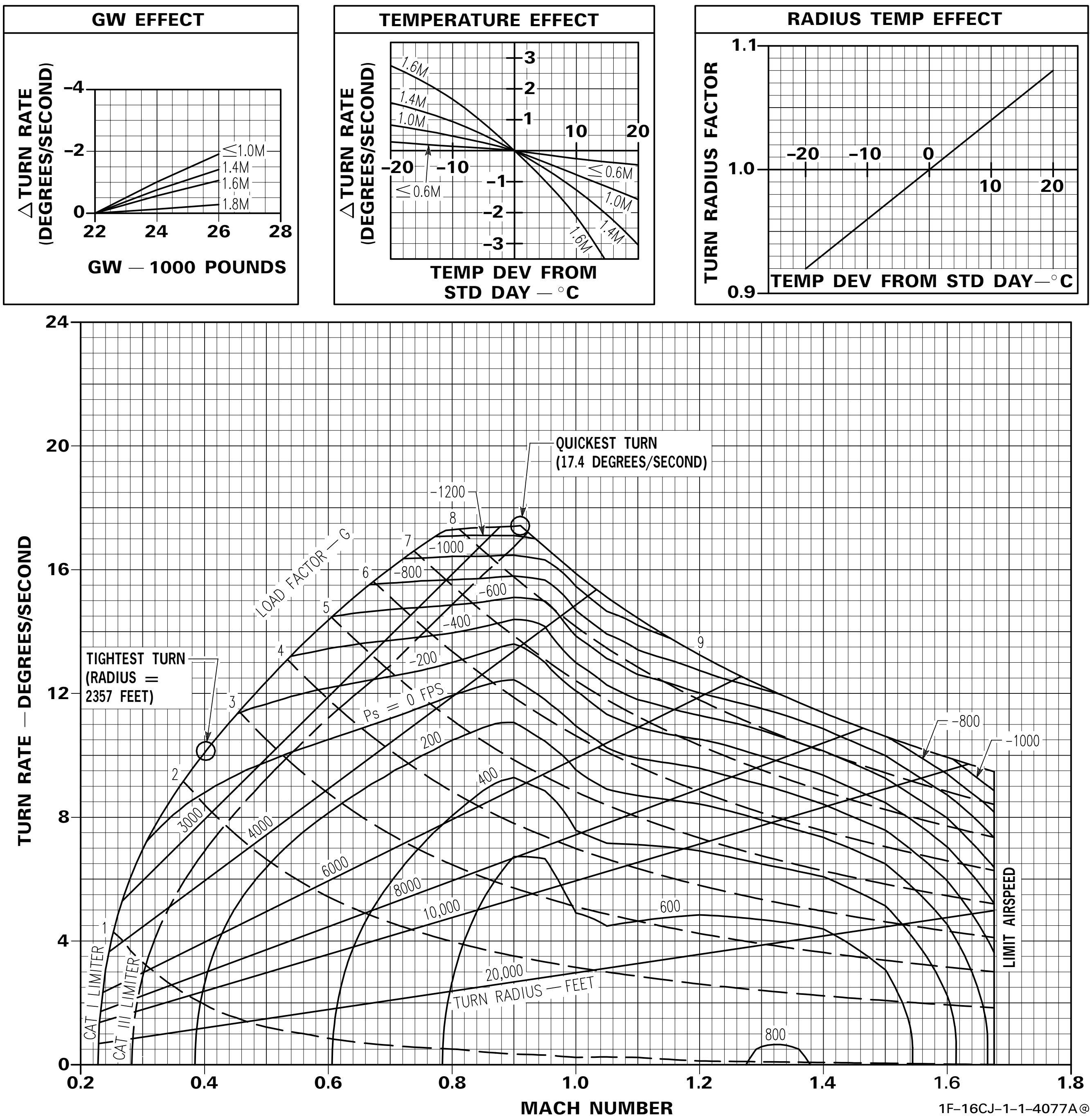


Figure B8-41.

Turn Performance — 25,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

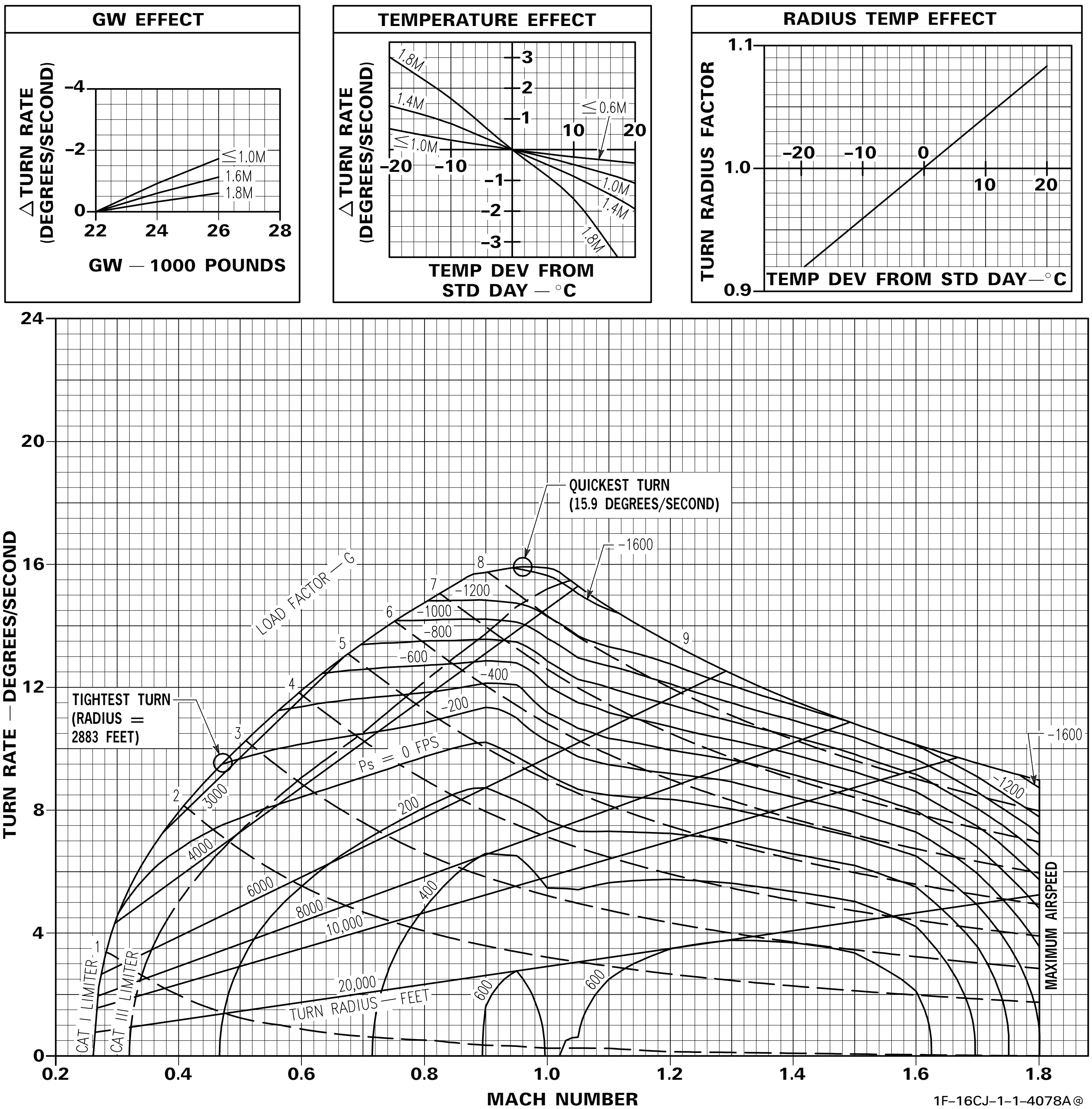


Figure B8-42.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

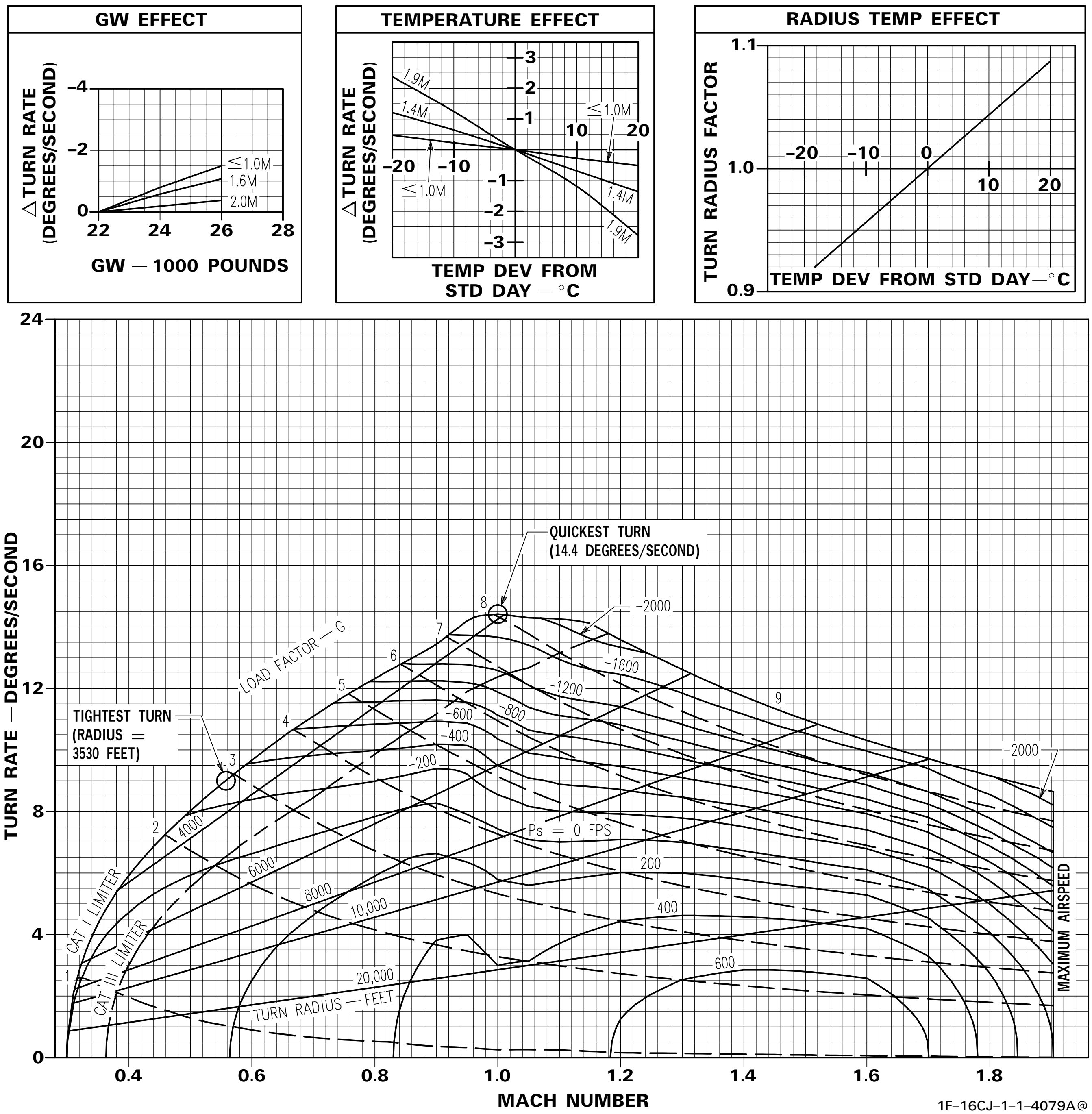


Figure B8-43.

Turn Performance — 35,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

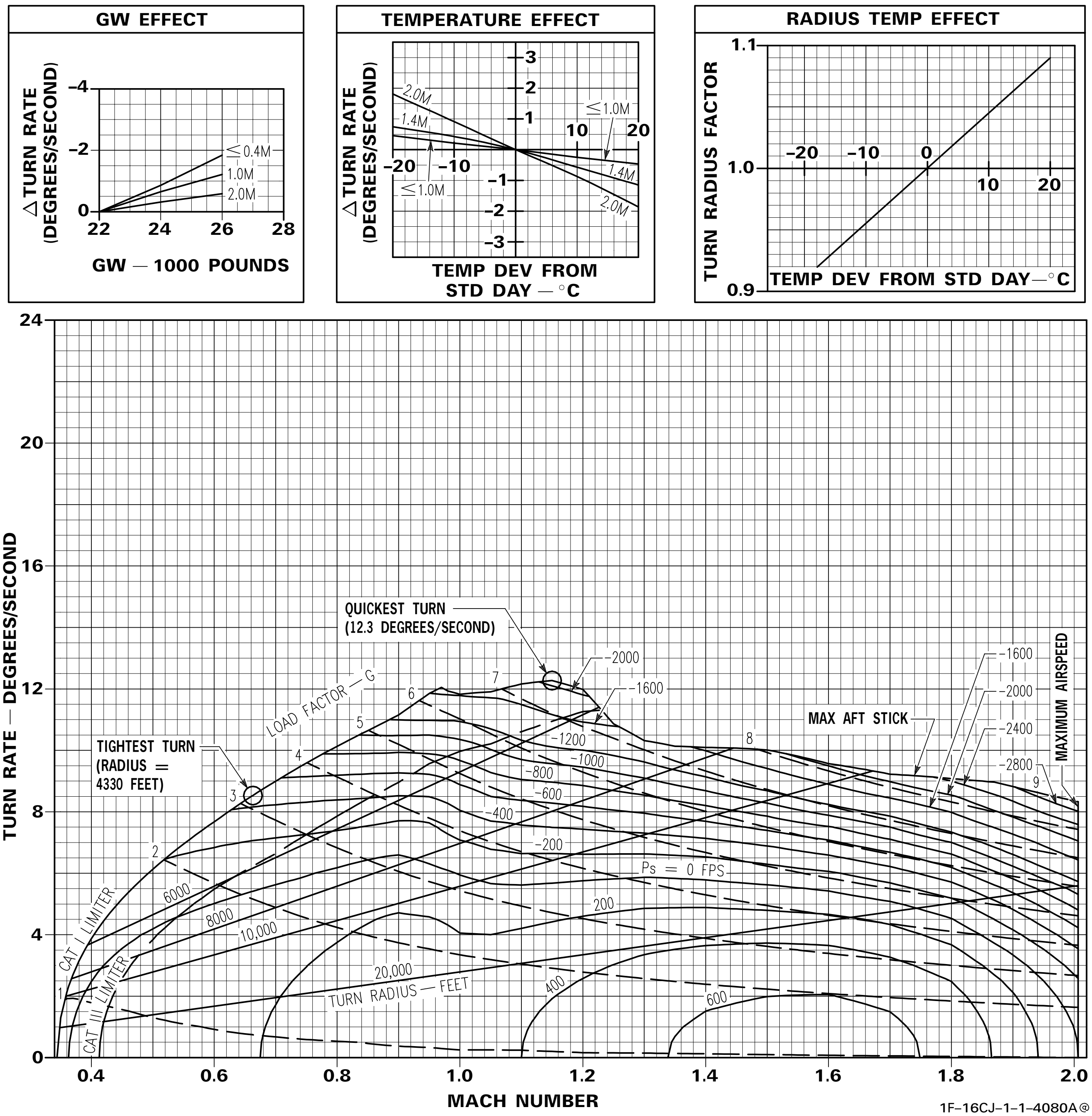


Figure B8-44.

Turn Performance — 40,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

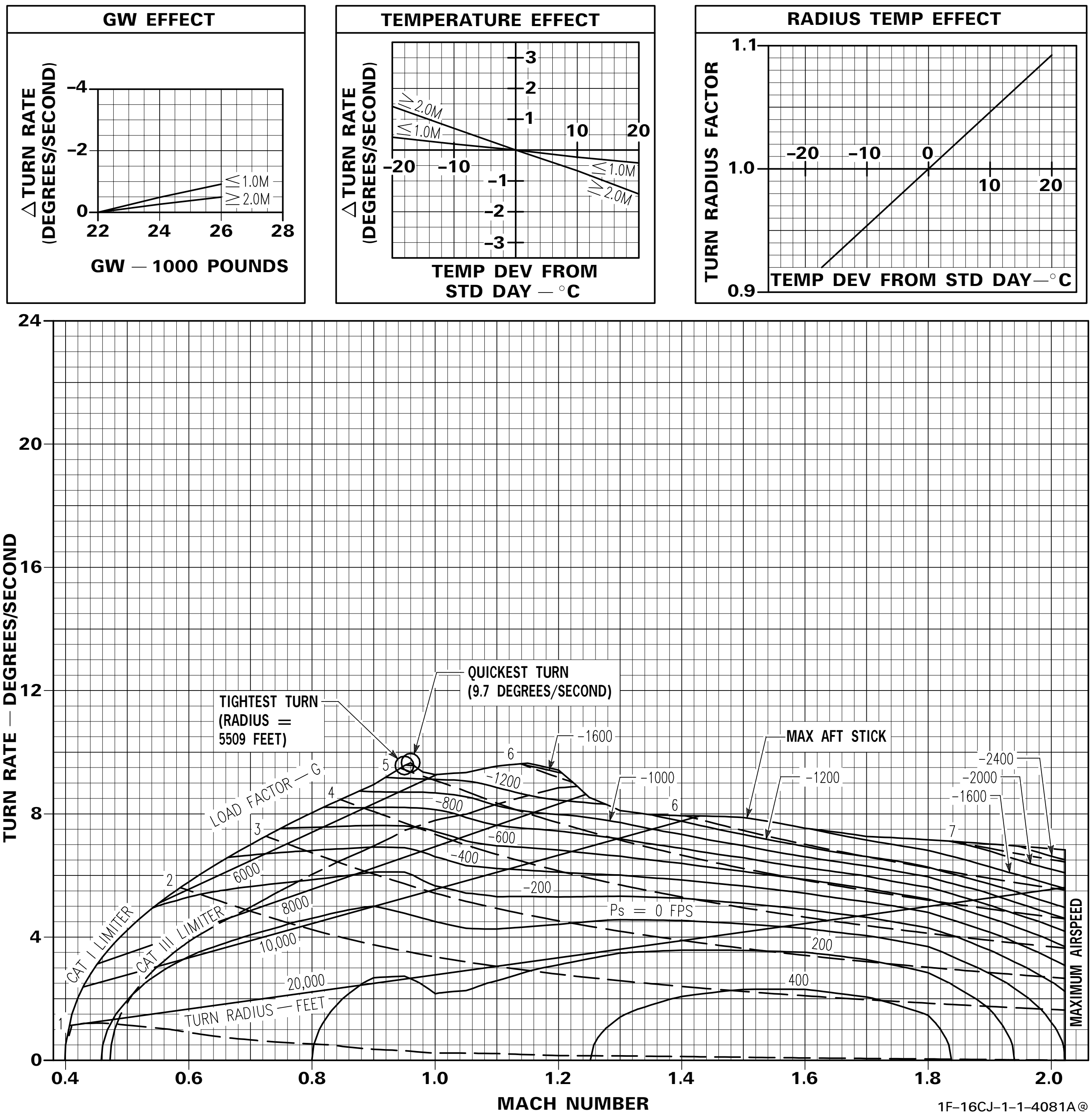


Figure B8-45.

Turn Performance — 45,000 Feet

DATA BASIS: FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- **DRAG INDEX = 0**
- **GW = 22,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

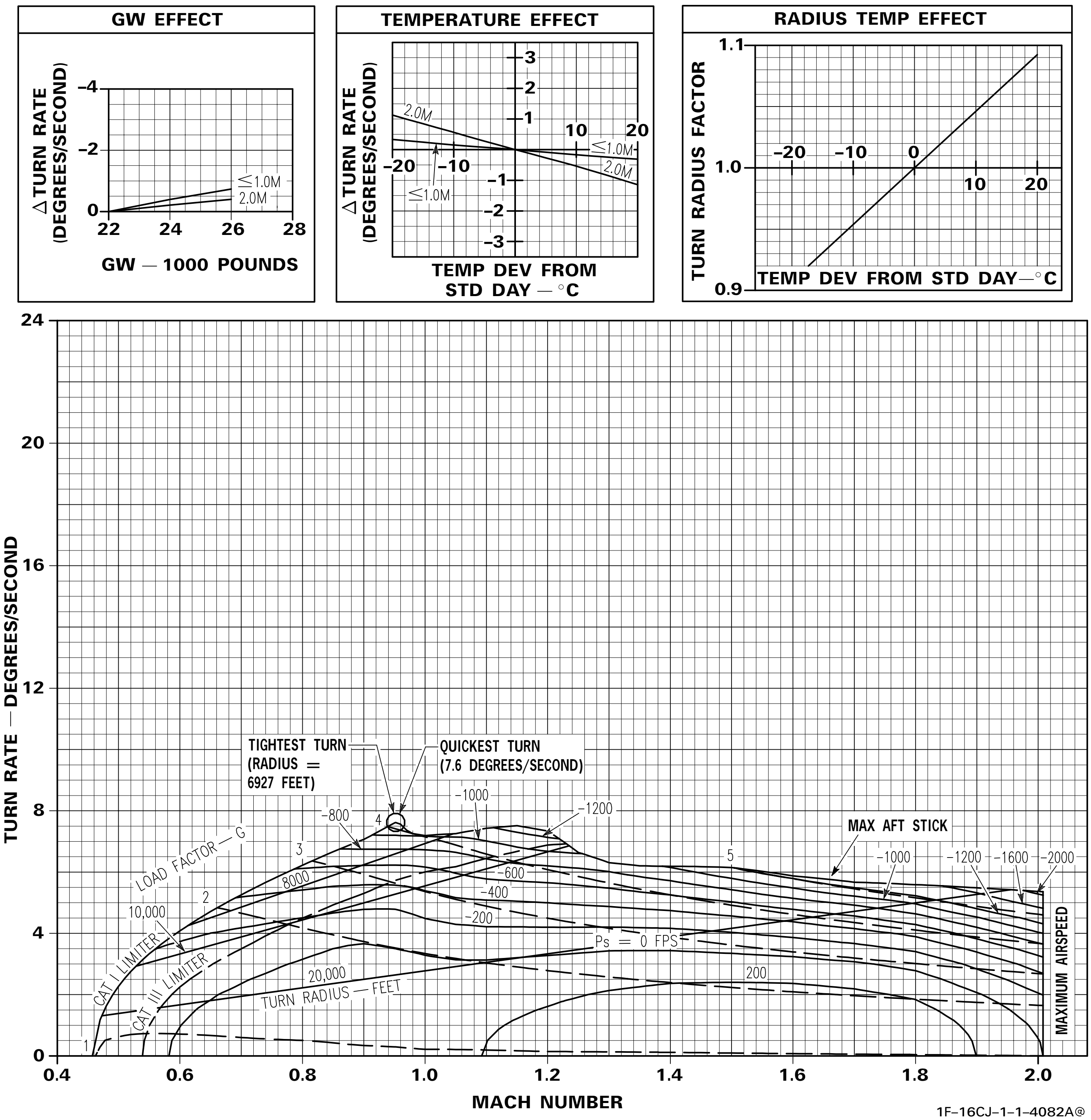


Figure B8-46.

Turn Performance — 50,000 Feet

DATA BASIS: FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

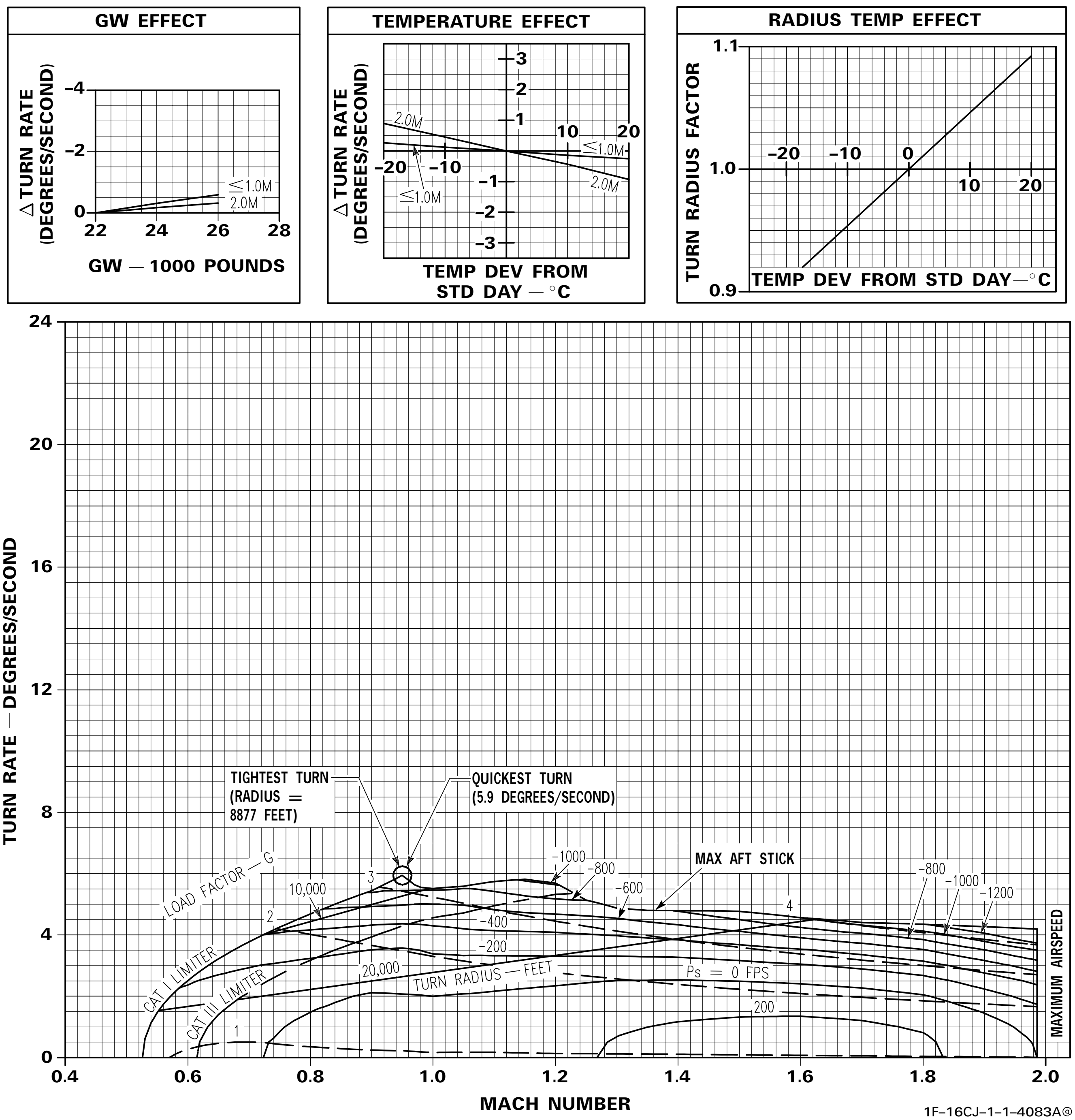


Figure B8-47.

Turn Performance — Sea Level

DATA BASIS: FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

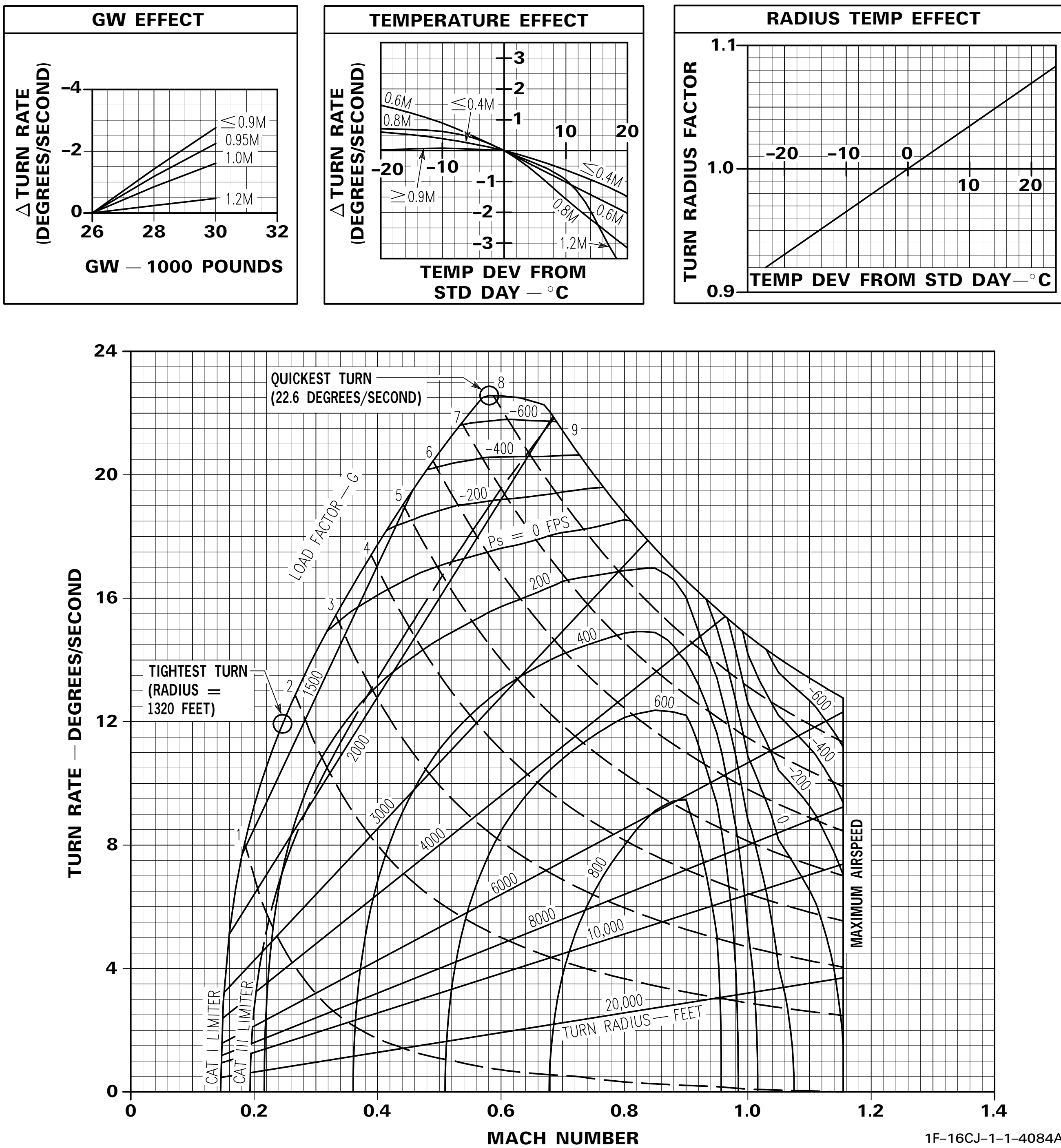


Figure B8-48.

Turn Performance — 10,000 Feet

DATA BASIS: FLIGHT TEST

ENGINE F110–GE–129

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

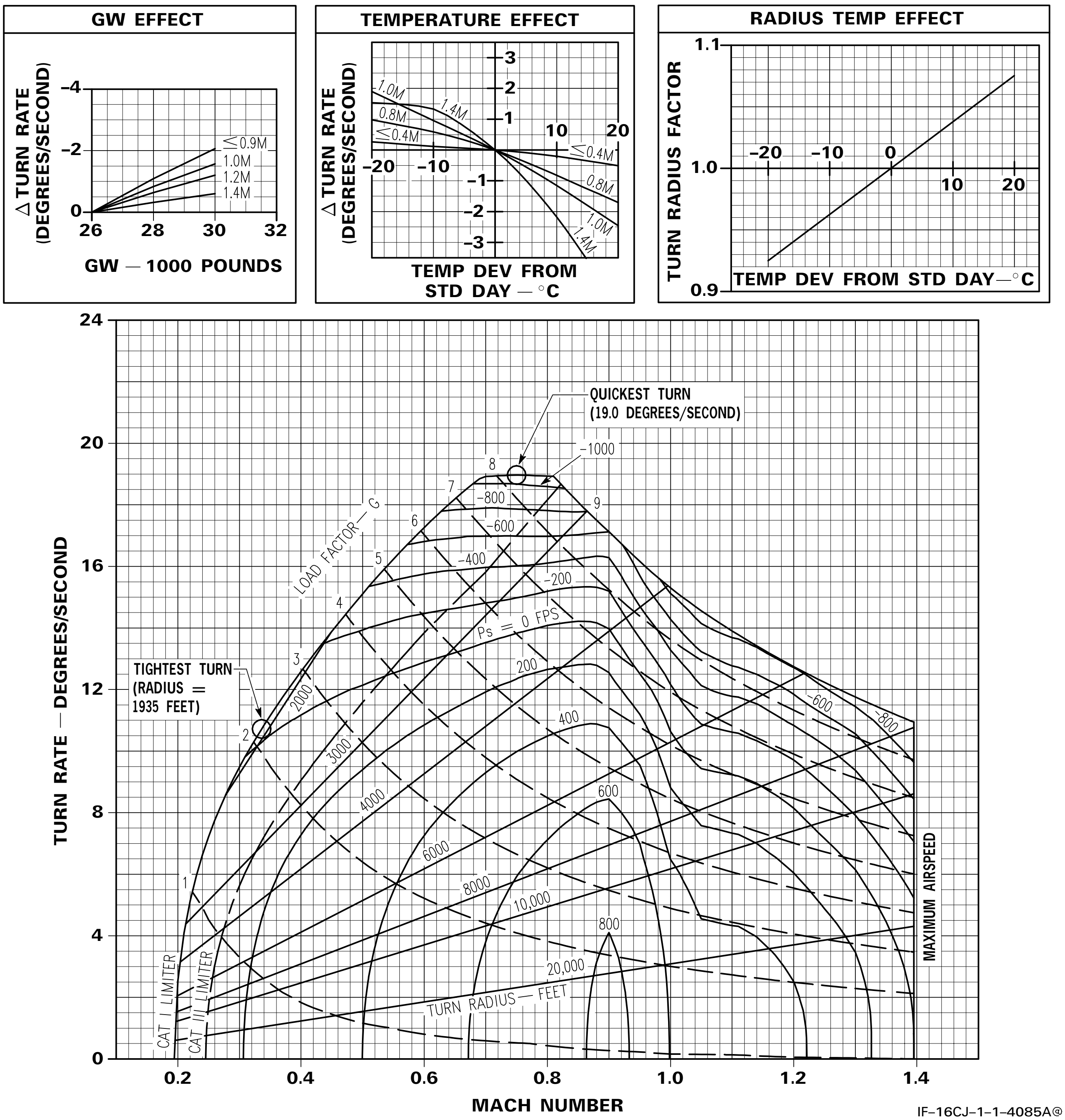


Figure B8-49.

Turn Performance — 20,000 Feet

DATA BASIS: FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

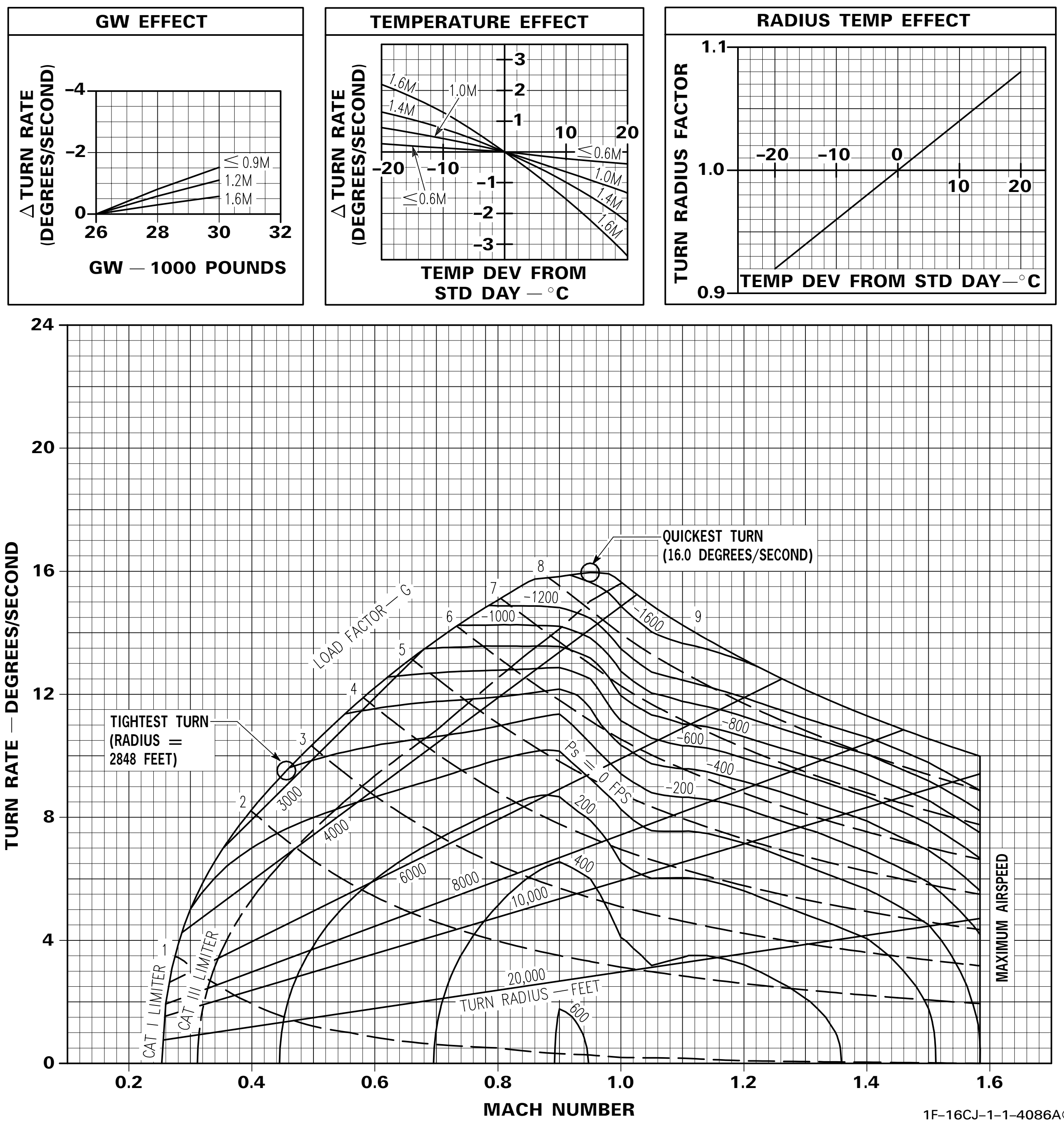


Figure B8-50.

Turn Performance — 30,000 Feet

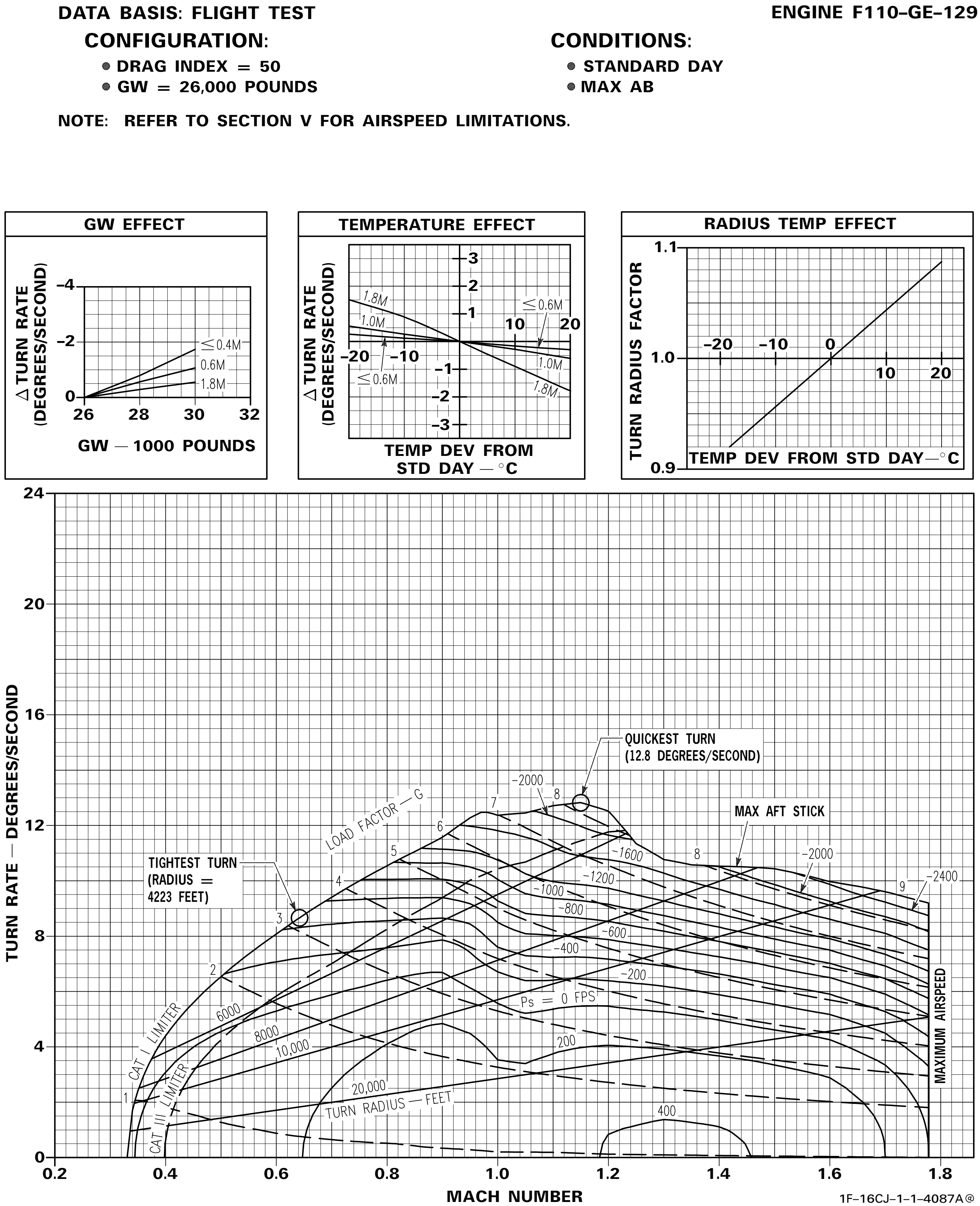


Figure B8-51.

Turn Performance — 40,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:

- **DRAG INDEX = 50**
- **GW = 26,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

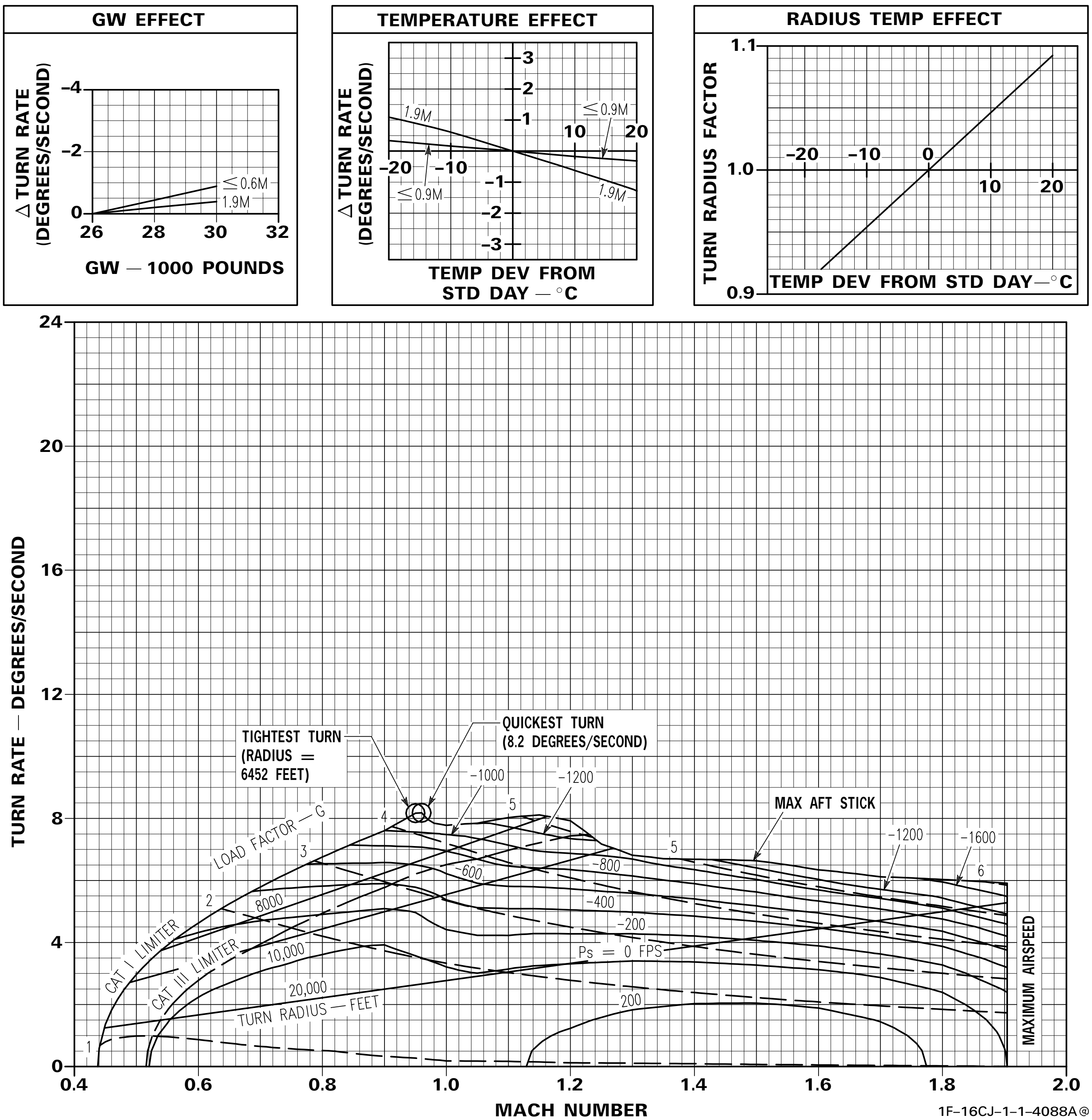


Figure B8-52.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:

- **DRAG INDEX = 100**
- **GW = 26,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

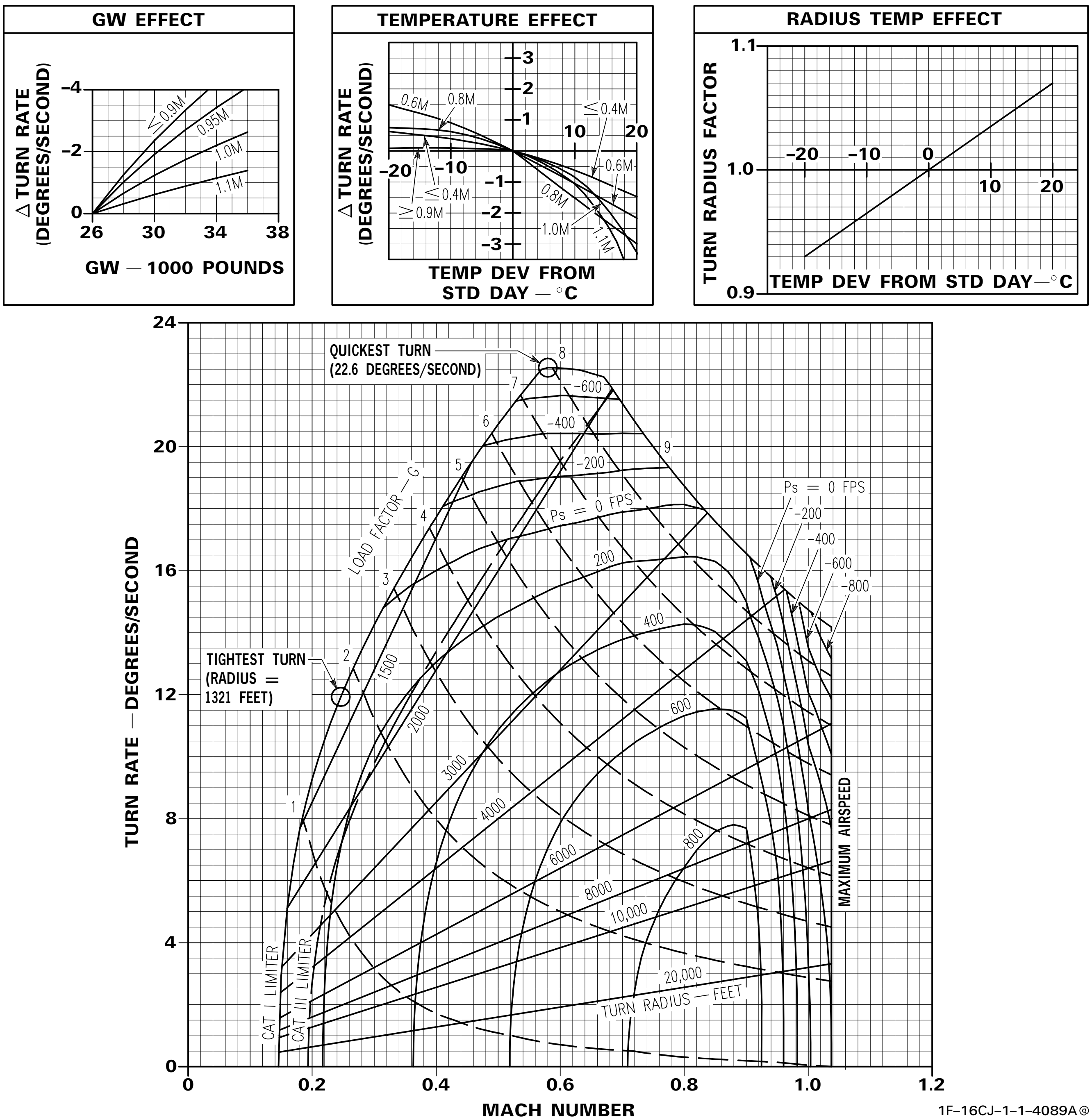


Figure B8-53.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

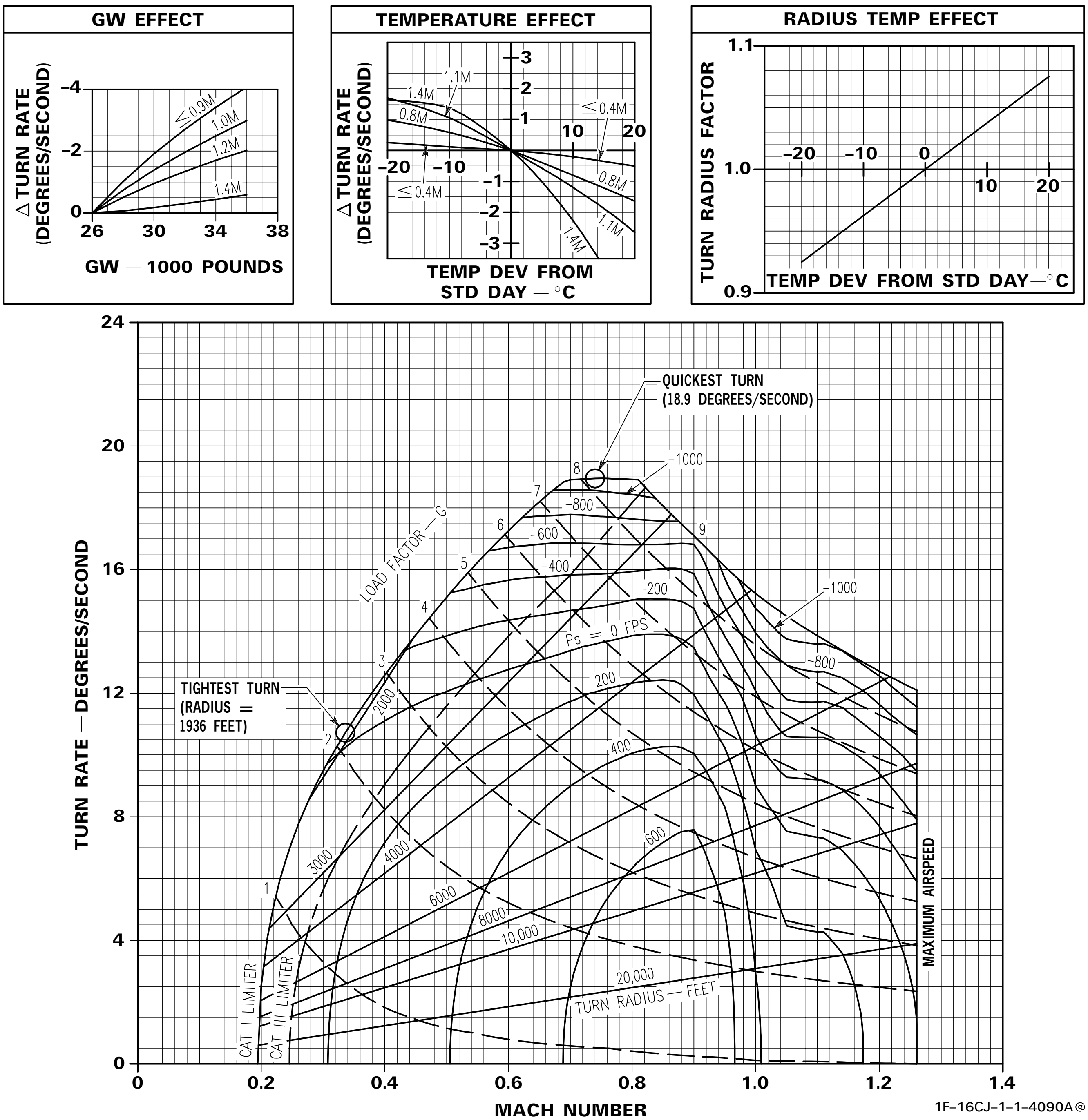


Figure B8-54.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

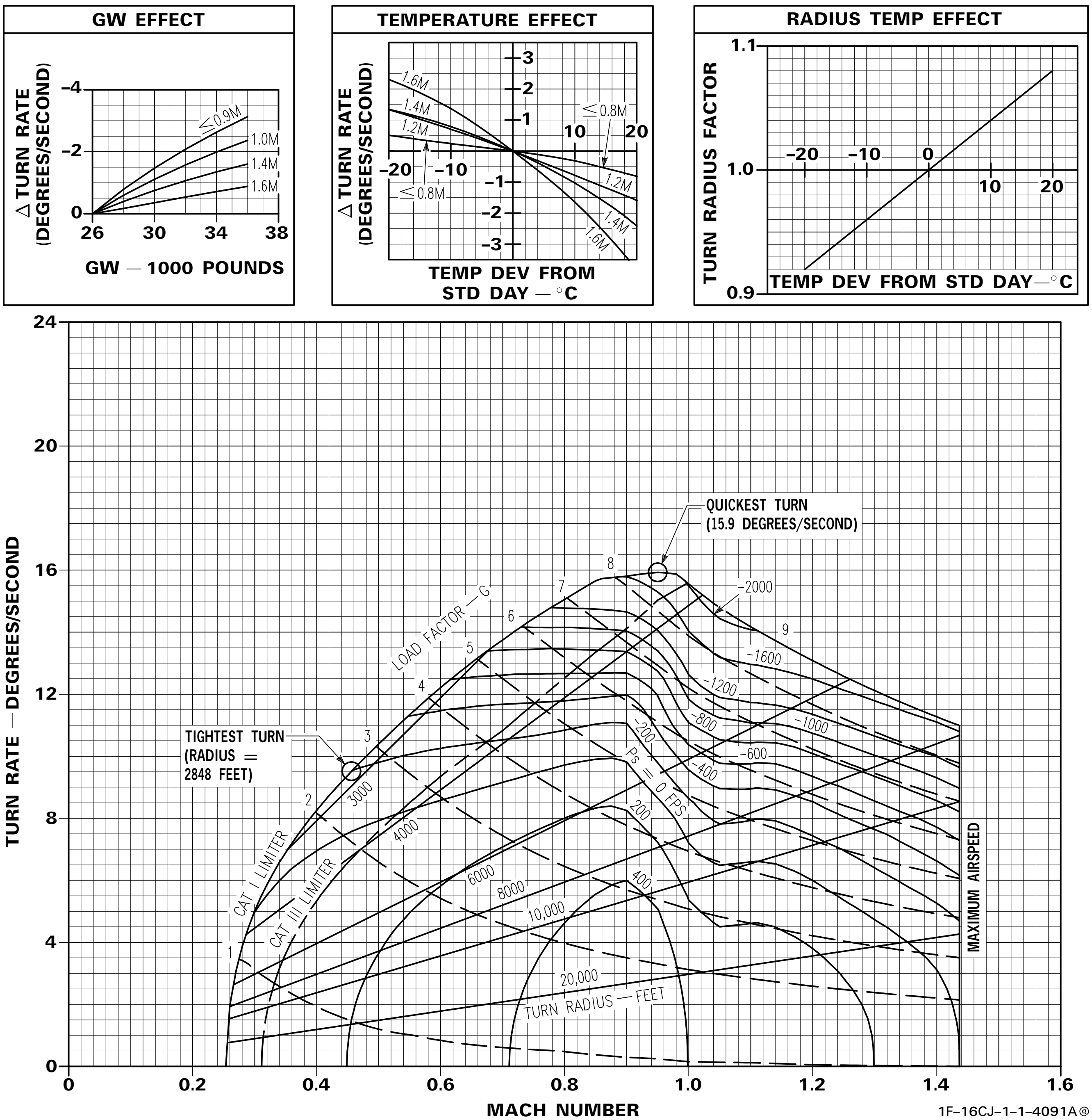


Figure B8-55.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

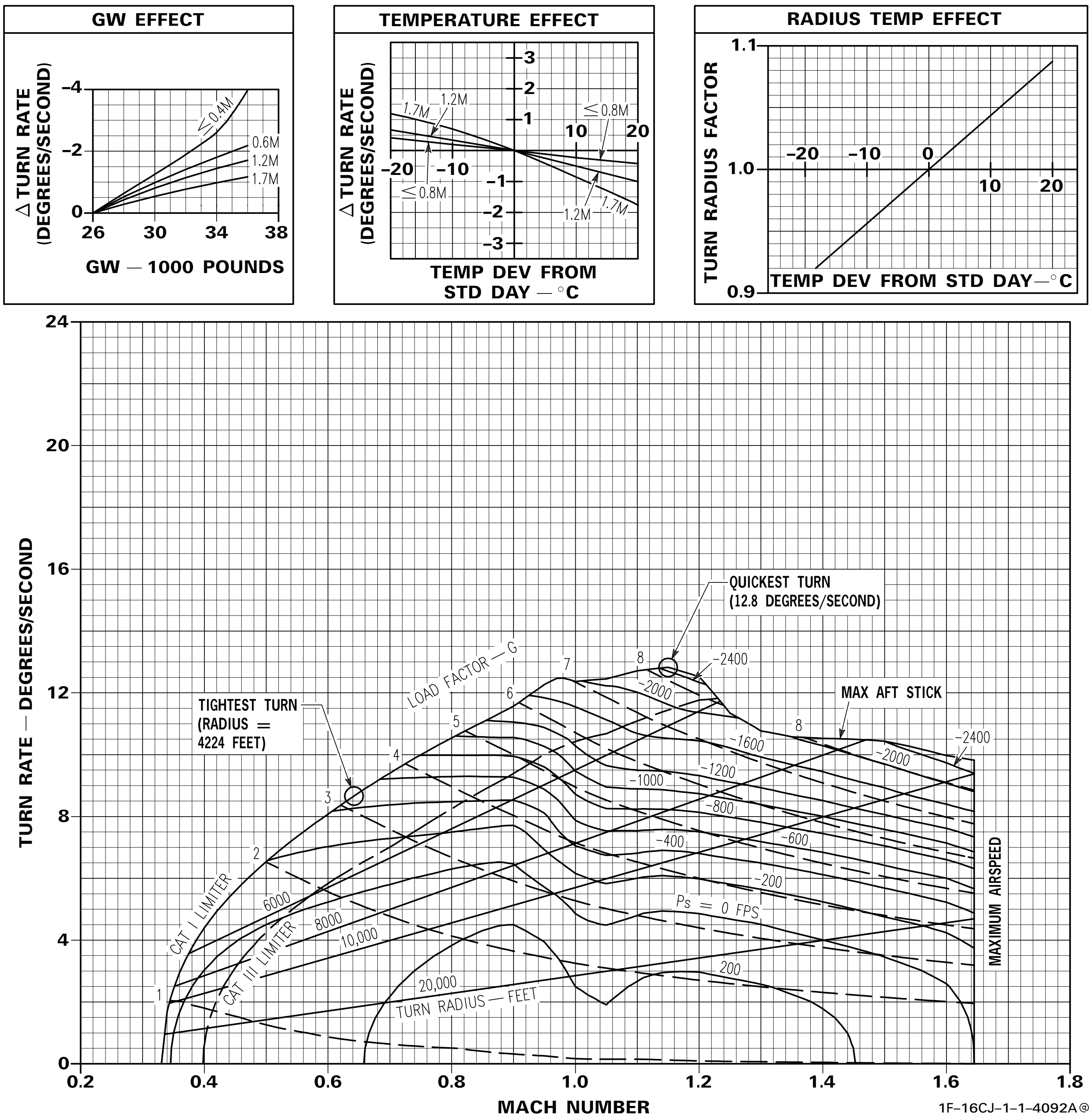


Figure B8-56.

Turn Performance — Sea Level

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

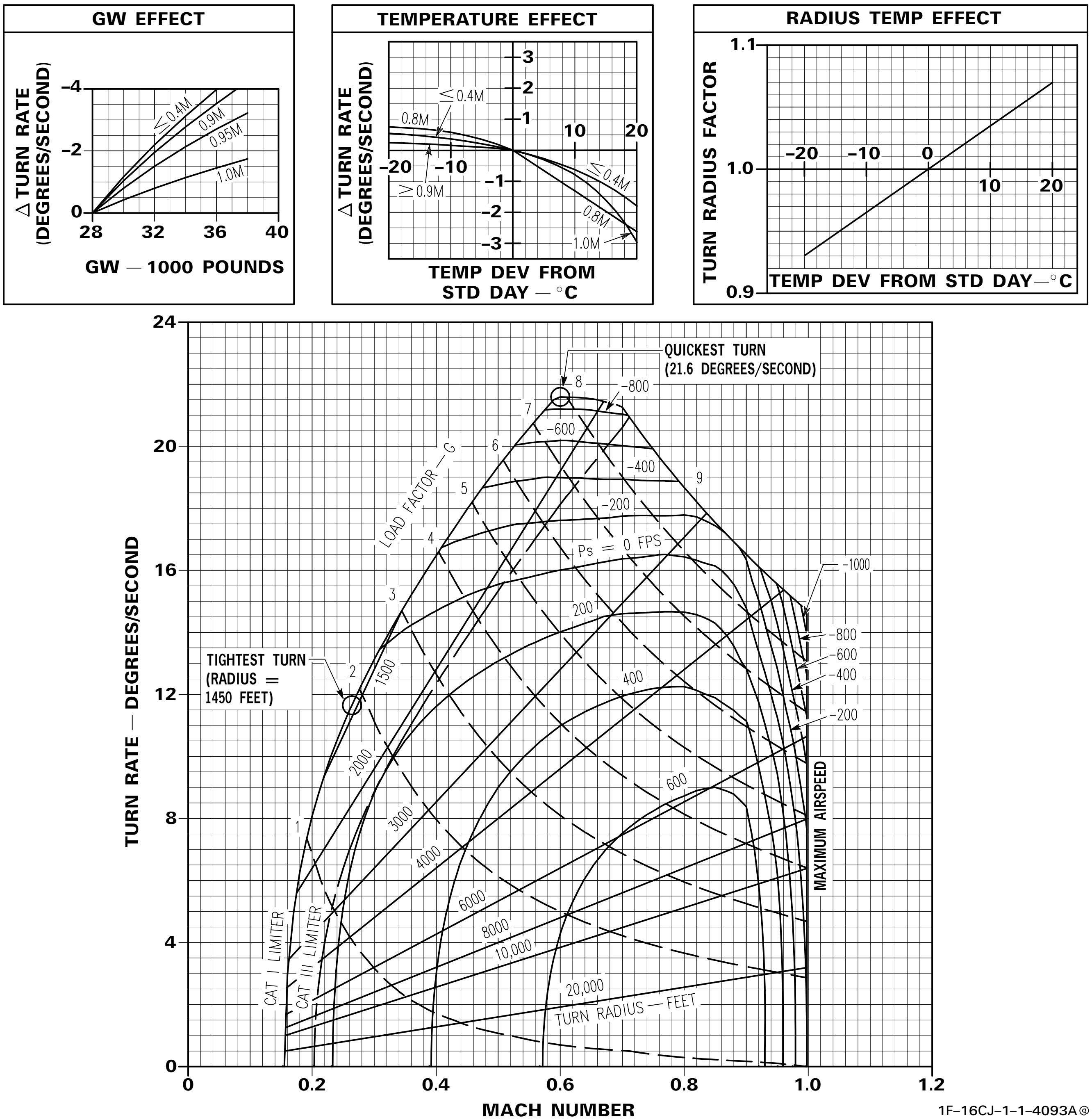


Figure B8-57.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

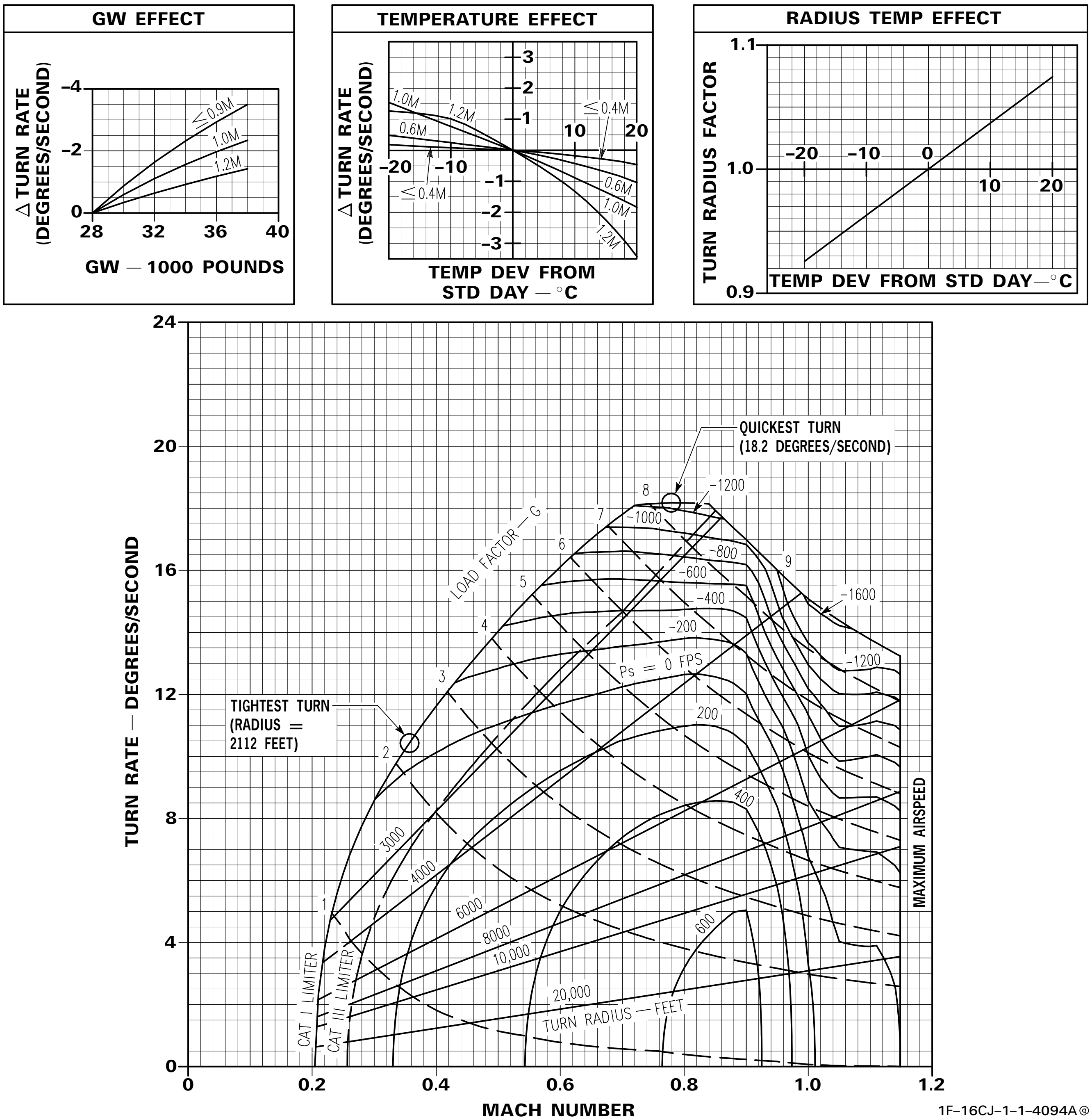


Figure B8-58.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

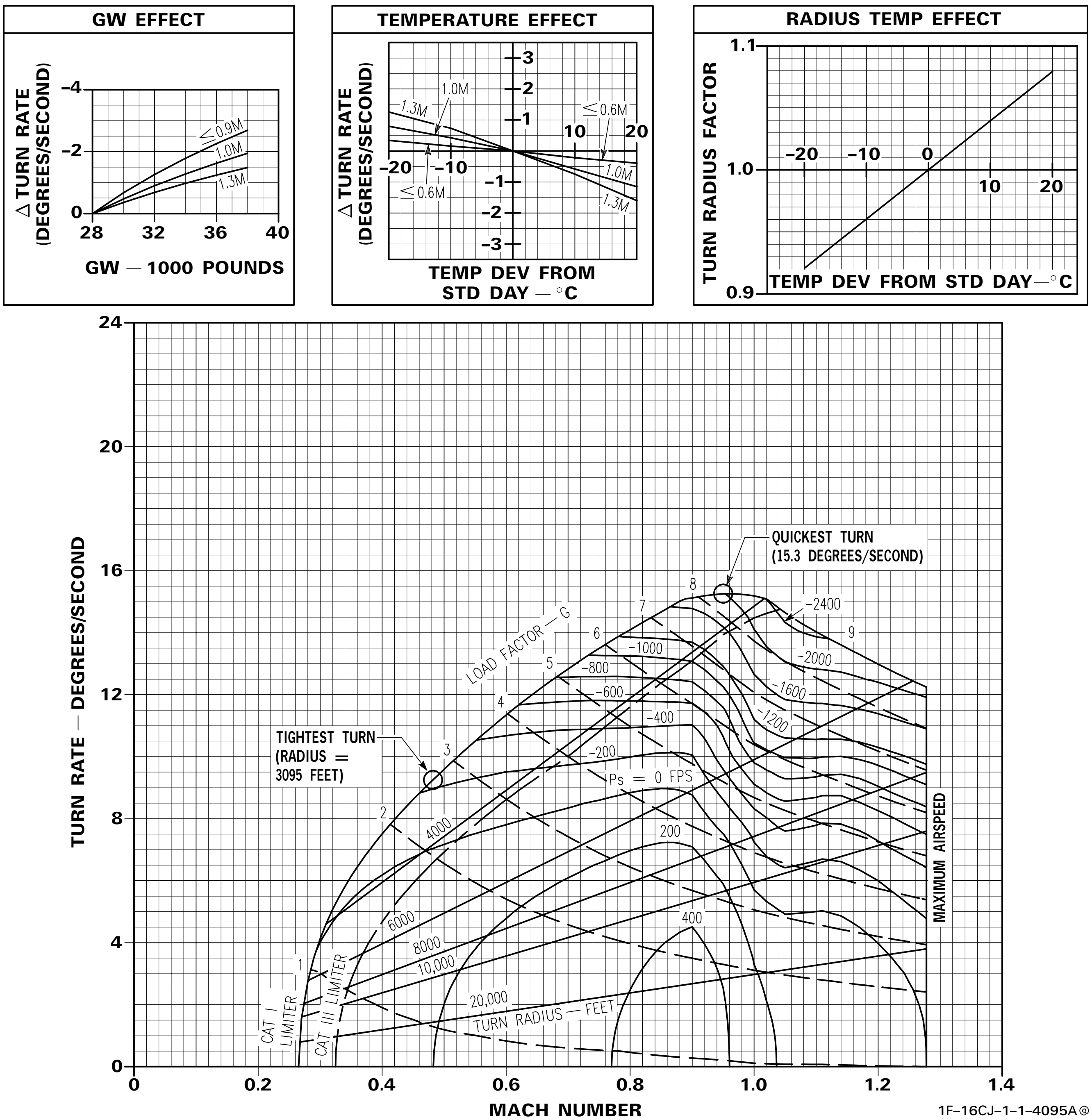


Figure B8-59.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST

ENGINE F110–GE–129

CONFIGURATION:

- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

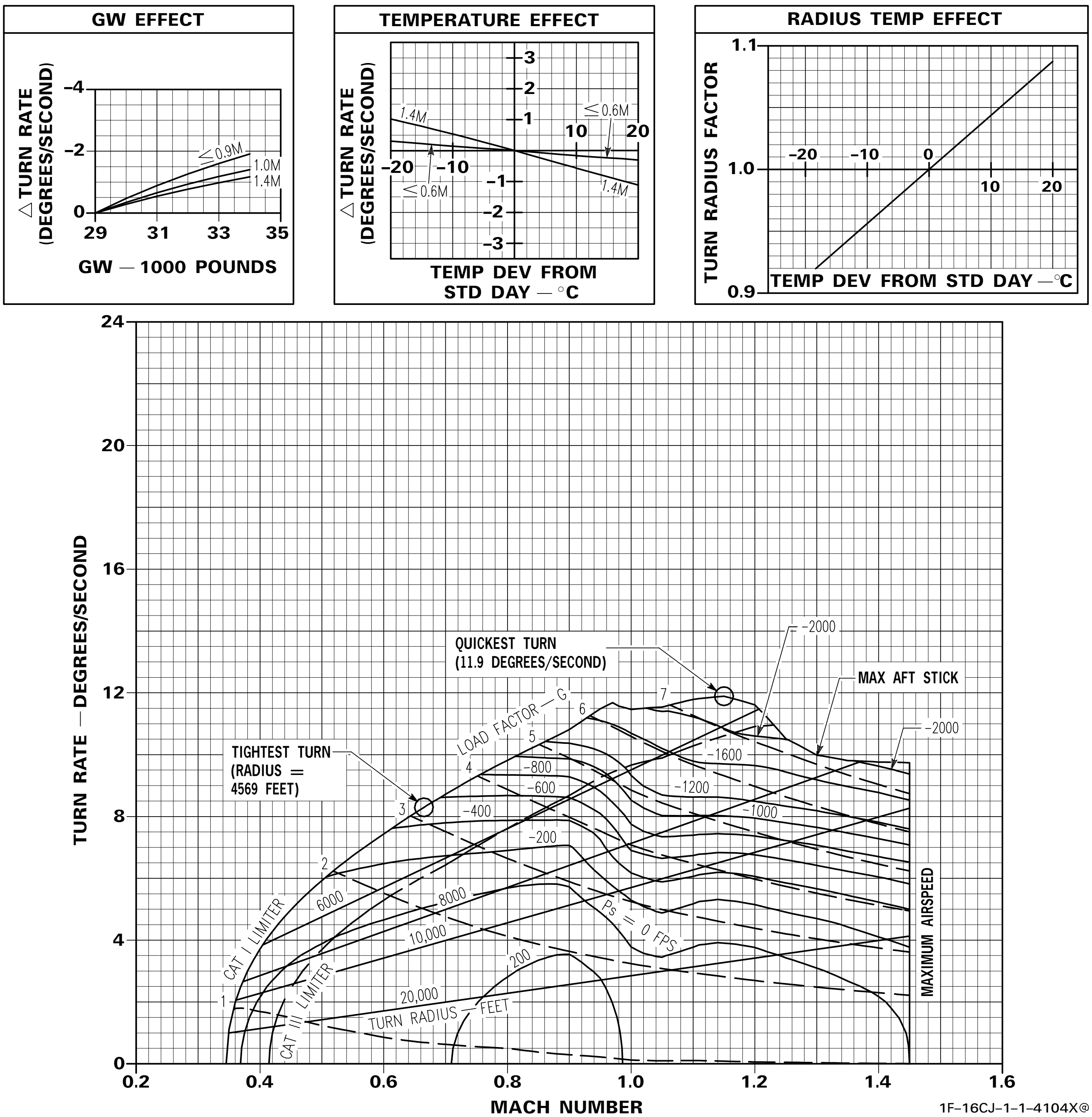


Figure B8-60.

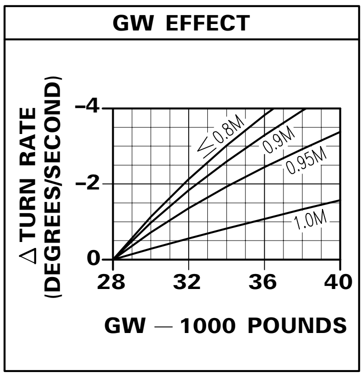
Turn Performance — Sea Level

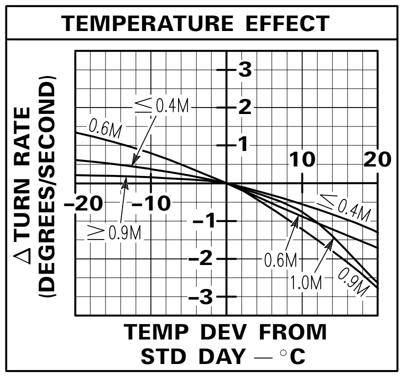
DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

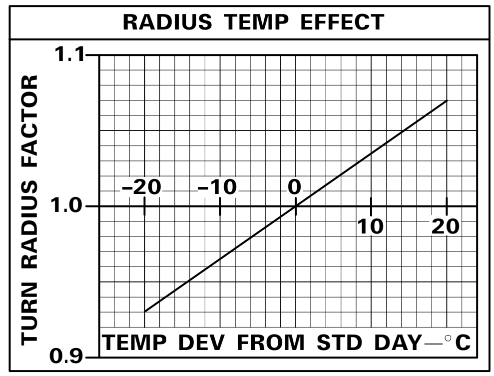
CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







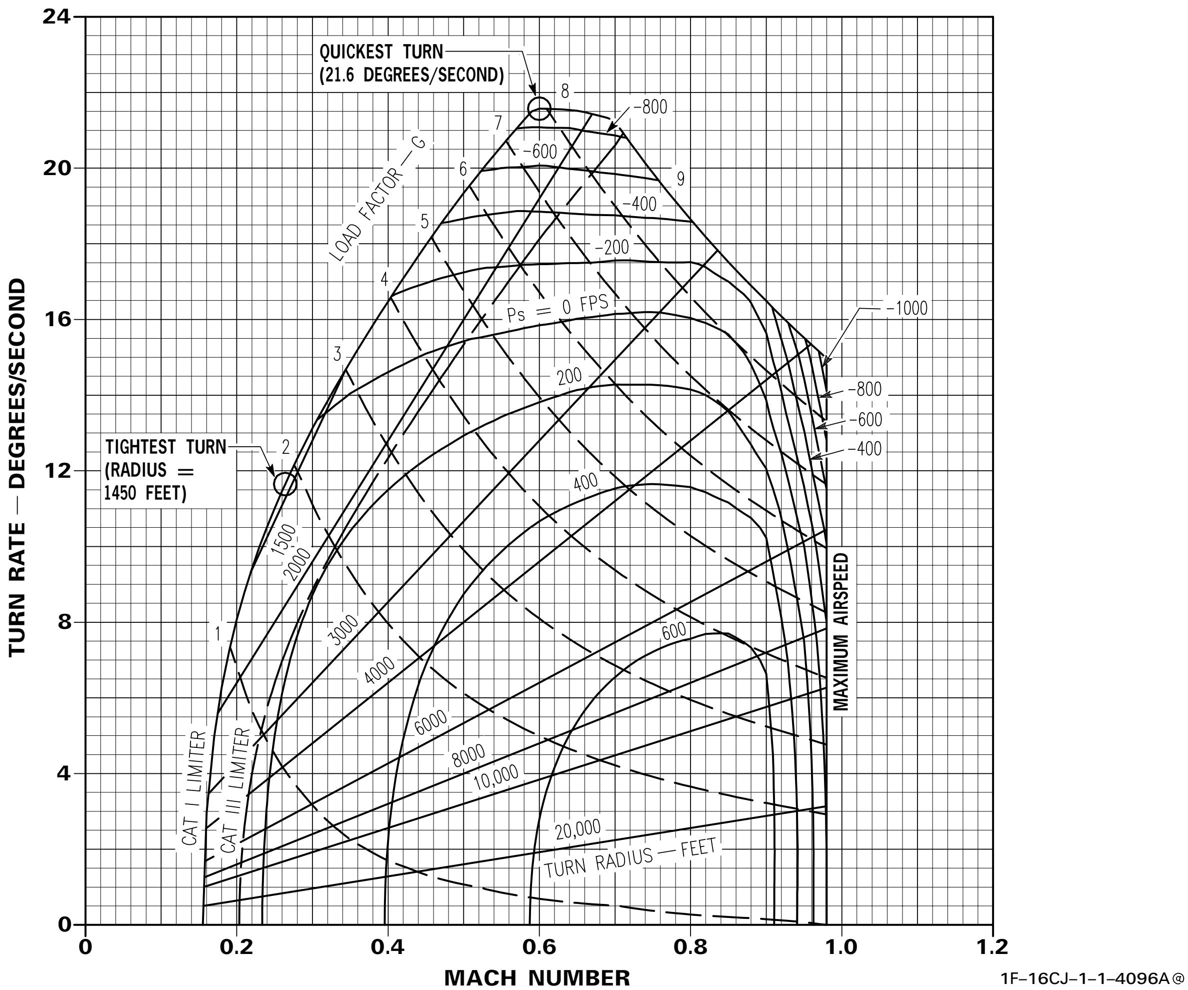


Figure B8-61.

Turn Performance — 10,000 Feet

DATA BASIS FLIGHT TEST | **ENGINE F110–GE–129**

CONFIGURATION:

- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

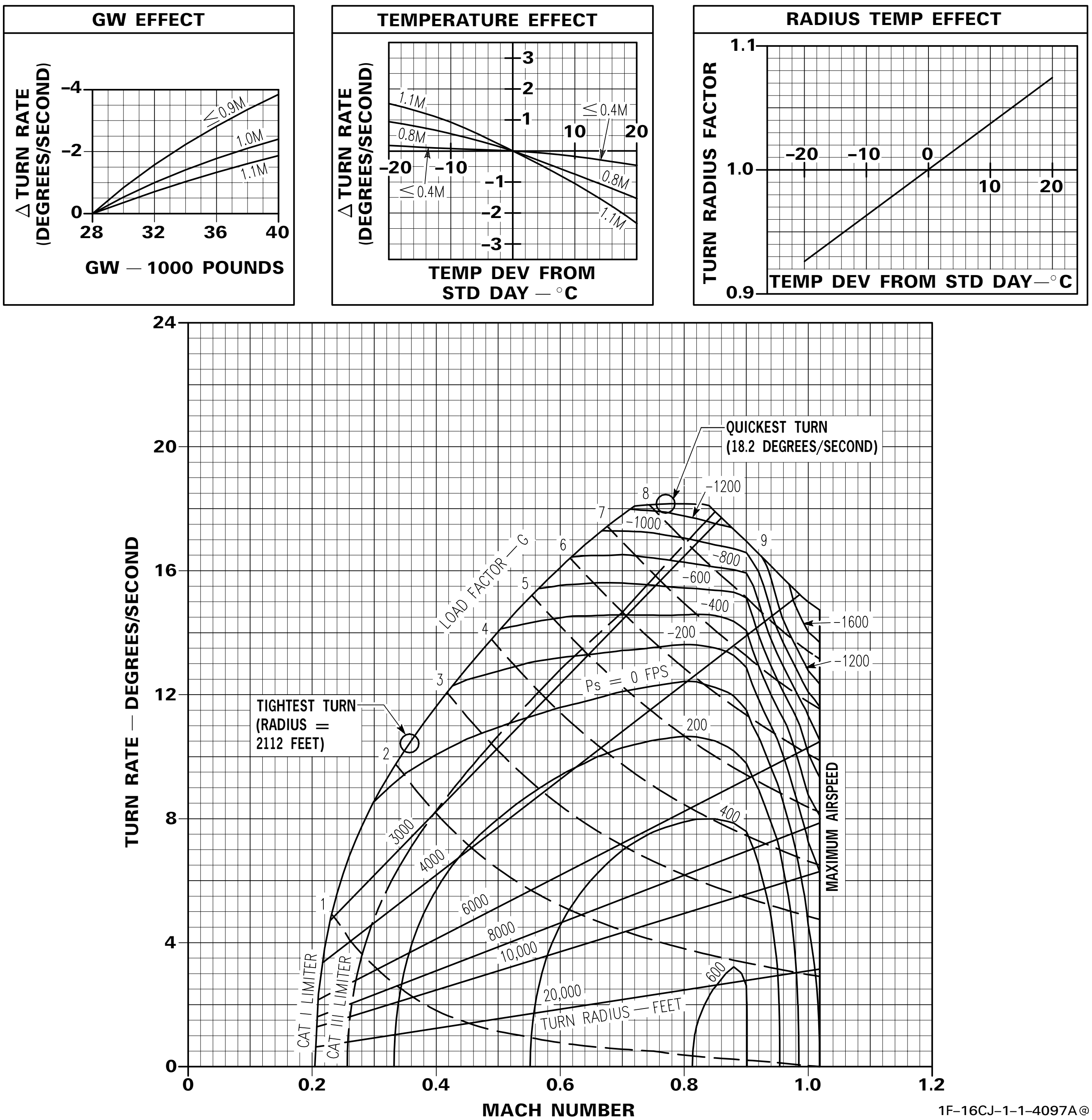


Figure B8-62.

Turn Performance — 20,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

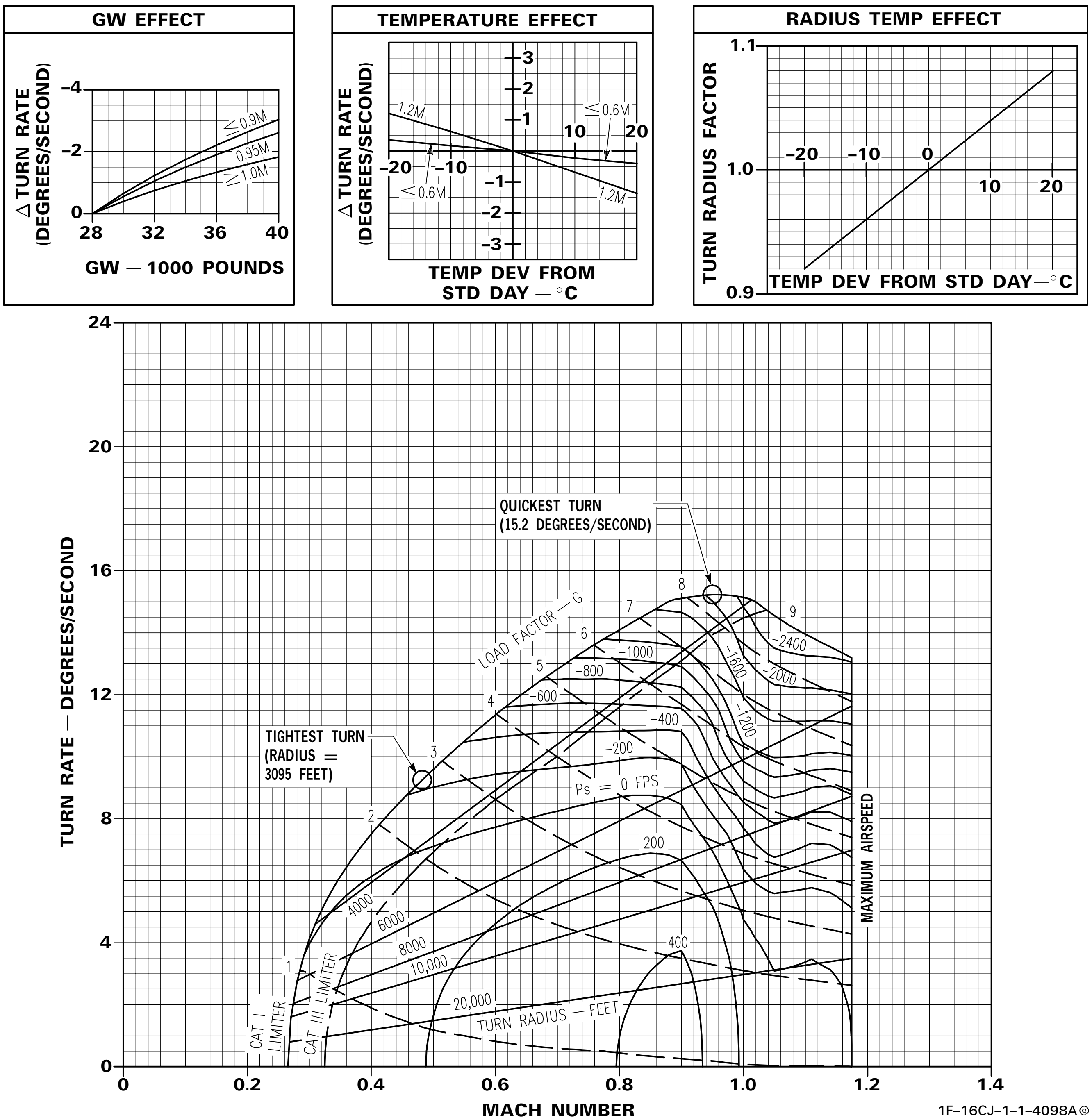


Figure B8-63.

Turn Performance — 30,000 Feet

DATA BASIS FLIGHT TEST **ENGINE F110–GE–129**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

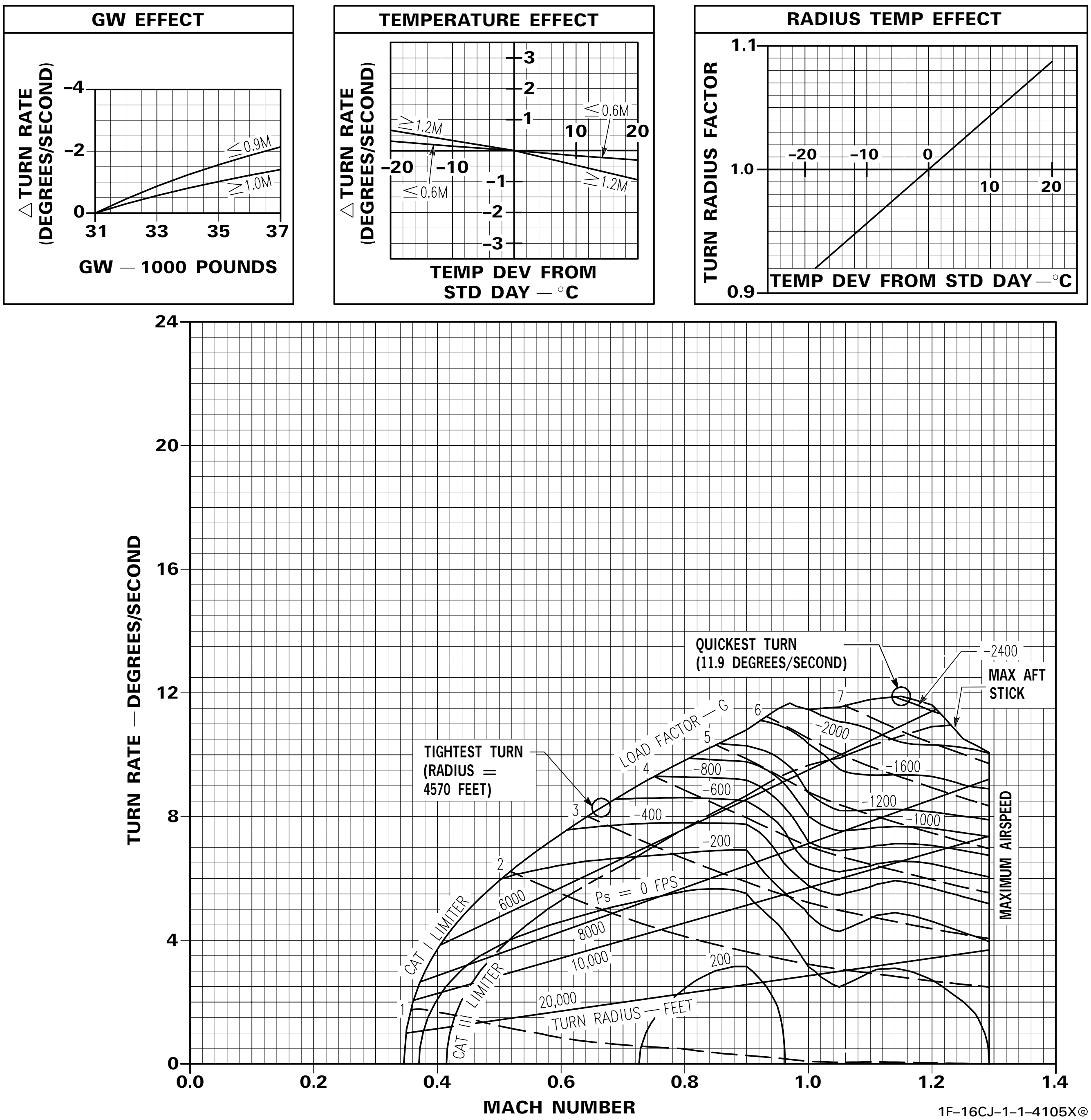


Figure B8-64.

Deceleration — 20,000 Feet

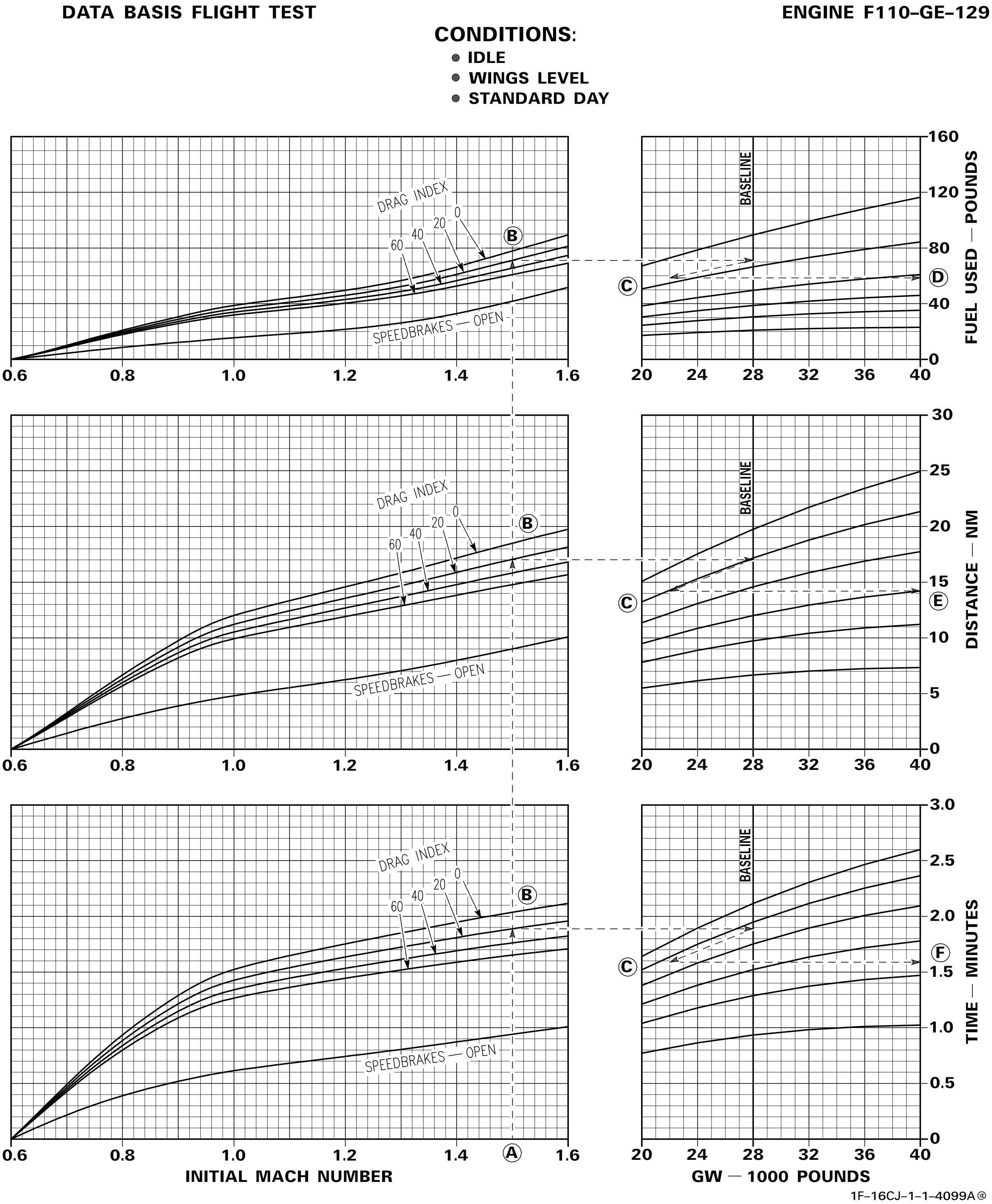


Figure B8-65. (Sheet 1)

Deceleration — 30,000 Feet

DATA BASIS FLIGHT TEST

CONDITIONS:
- IDLE
- WINGS LEVEL
- STANDARD DAY

ENGINE F110-GE-129

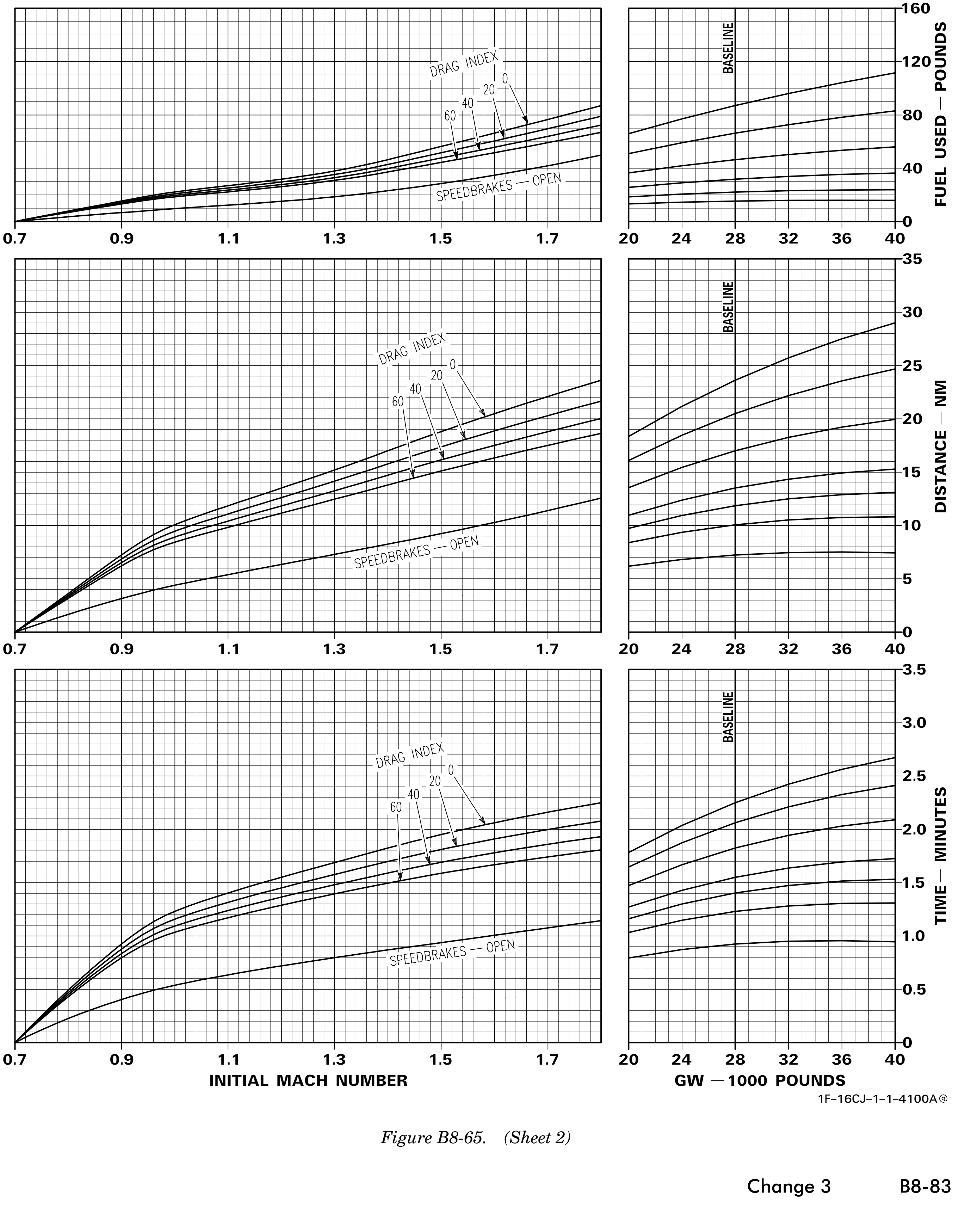


Figure B8-65. (Sheet 2)

Deceleration — 40,000 Feet

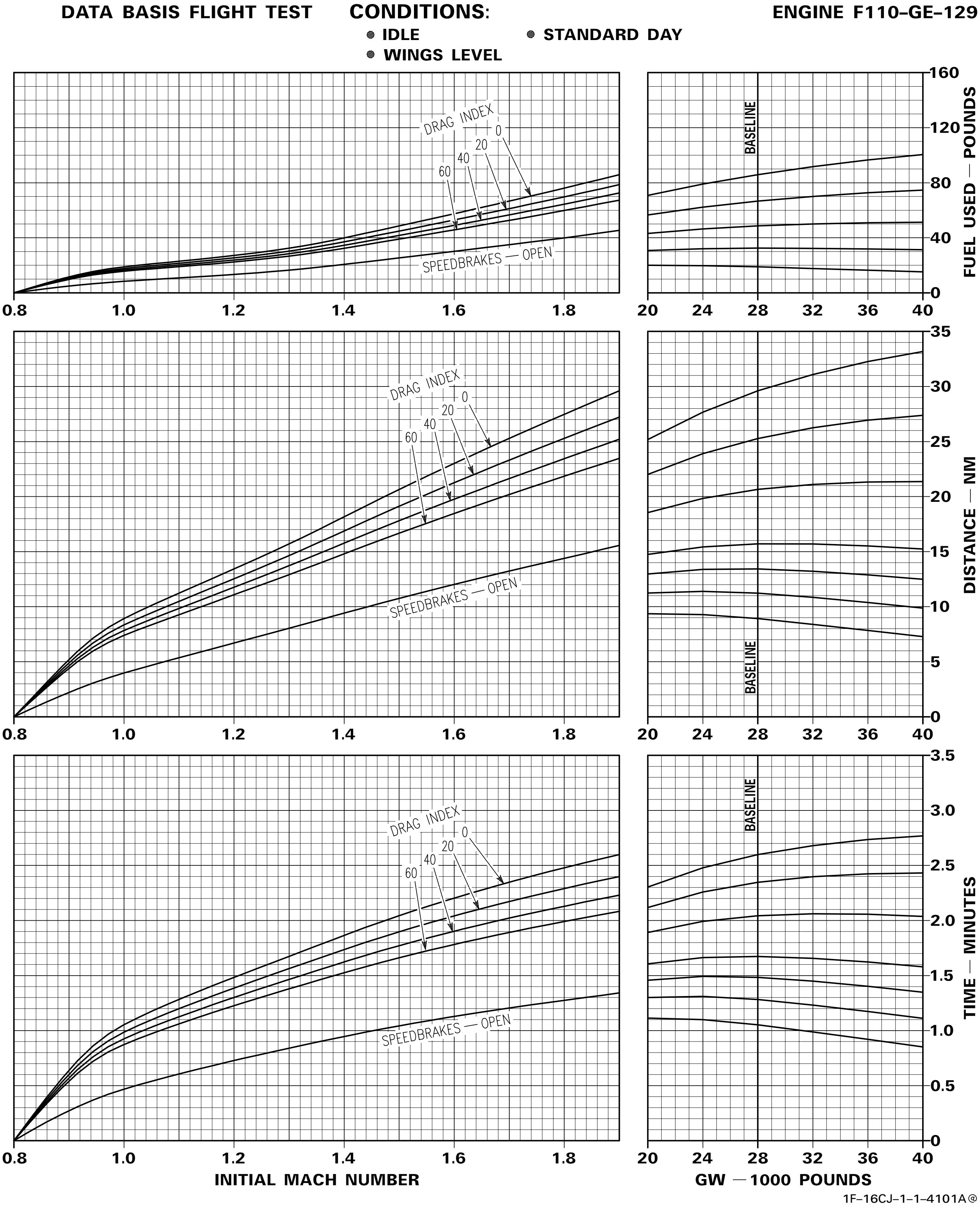


Figure B8-65. (Sheet 3)

PART 9 – MISSION PLANNING

Refer to Appendix A. Part 9 – Mission Planning

All data on pages B9-2 thru B9-18, including Figures B9-1 thru B9-13, deleted.

APPENDIX C

F100-PW-229 With Conformal Fuel Tanks

PERFORMANCE DATA

PART 1 — INTRODUCTION

TABLE OF CONTENTS

LIST OF CHARTS

INTRODUCTION

The data presented in the charts is applicable to aircraft equipped with conformal fuel tanks (CFT's) mounted and an F100-PW-229 engine. All performance data is based on use of all approved fuels. The data covers a flight spectrum ranging from sea level to approximately 60,000 feet and 0-2.0 mach. No conservative factors are used in any of the fuel consumption data presented herein. The appendix is divided into nine parts with performance data presented in an appropriate order for flight planning. The usage of the material requires that (except Part 9) all the text be presented first followed by all the charts. Because of the large number of stores and stores loading combinations the aircraft is capable of carrying, most charts are presented in a drag index format. All charts are based on estimated F-16 performance due to the incorporation of CFT's. Refusal Speed charts in Part 2 and all charts in Part 7 are based on predicted brake performance.

NOTE

Limiting conditions relative to altitude, airspeed, stores, gross weight, etc., are presented in Section V and should be checked prior to selecting mission conditions. Some charts may present data for more than permissible maximun weight per Section V. Such weight presentation does not have precedence over the limits of Section V. All data is based on the (1962) U.S. standard atmosphere and the (1966) U.S. standard atmosphere supplements. Pressure altitude and true mach are used for all data unless specified otherwise.

DRAG INDEX AND CONFIGURATION WEIGHT

Drag index is a numerical factor which provides a means for quantifying the effects on aircraft performance of adding stores to the basic aircraft. The drag index system provides accurate corrections for store effects at all subsonic speeds (less than 1.0 mach). At supersonic speeds (greater than 1.0 mach), the size and shape of the store(s) affect drag to a significant degree, and a single value of drag index can no longer exactly represent all stores and combinations at these speeds. Therefore, it should be noted that actual supersonic performance may vary from that predicted by the performance charts.

Configuration weight is intended to facilitate mission planning by precomputing the weight of a configuration which is to be added to the aircraft operating weight to obtain aircraft start engine weight. Configuration weight is the weight of the complete configuration which is uploaded to the basic aircraft. The configuration weight includes the weight of all the stores (missiles, bombs, pods, etc.), suspension equipment, full external fuel tanks (if used), and ECM pod (if used).

The drag index and configuration weight of authorized takeoff store loadings are presented in T.O. GR1F-16CJ-1-2, STORES LIMITATIONS.

The drag indexes and weights of specific stores and suspension equipment items are given in figure C1-1. If the drag index and configuration weight for a specific loading are not presented in T.O. GR1F-16CJ-1-2, STORES LIMITATIONS (i.e., normal downloads), figure C1-1 may be used to determine drag index and configuration weight.

NOTE

- The drag index for a specific loading accounts for the combined effects of the stores on drag and therefore may vary slightly from the drag index computed using figure C1-1.
- Configuration weight for a specific loading may vary slightly from the weight computed using figure C1-1 due to rounding.

Aircraft start engine weight is determined by adding aircraft operating weight, internal usable fuel, and, if installed, ammunition, chaff/flares, and configuration weight. All these weights are given in figure C1-1.

The aircraft operating weight given is an approximate value and includes pilot (D 2), oil, oxygen, unusable fuel, and tip missile launchers. For weight and balance information, refer to the individual aircraft Form F (DD Form 365-4) and the Weight and Balance Handbook. An example of the determination of the drag index, configuration weight, and aircraft start engine weight is provided in the sample problem which follows.

REFER TO FIGURE C1-1.

Assume a loading of four AIM-9L missiles on LAU-129/A launchers, two MK 84 bombs, and two 370-gallon fuel tanks. The drag index and configuration weight for this loading from T.O. GR1F-16CJ-1-2, STORES LIMITATIONS, are 152 and 11,777 pounds, respectively.

For this example, drag index and configuration weight are computed as follows:

STA 1 and 9 (2 AIM-9L missiles on LAU-129/A launchers)

The basic aircraft drag index includes tip missiles on 16S210 missile launchers. The drag index is 1 for a tip missile on a LAU-129/A missile launcher and the weight of an AIM-9L is 195 pounds.

For two AIM-9L's on LAU-129/A launchers:

- Drag index = 2 × 1 = 2
- Weight = 2 × 195 = 390 pounds

STA 2 and 8 (AIM-9L missiles on LAU-129/A launchers + adapters)

One AIM-9L has a drag index of 5 and weighs 195 pounds. The drag index of a LAU-129/A launcher with adapter is 6 and the weight is 113 pounds. Since AIM-9L's are carried at stations 2 and 8, multiply each drag index and weight by 2 and sum the results.

For two AIM-9L's and LAU-129/A launchers with adapters:

- Drag index = (2 × 5) + (2 × 6) = 22
- Weight = (2 × 195) + (2 × 113) = 616 pounds

STA 3 and 7 (MK 84 on wing weapon pylon)

The drag index of one MK 84 bomb is 9 and the bomb weight is 1970 pounds. The drag index of a pylon with MAU-12C/A, D/A rack at station 3 or 7 is 15 and the weight is 281 pounds. Since two MK 84 bombs are to be carried on pylons, multiply each drag index and weight by 2 and sum the results.

For two MK 84's on wing weapon pylons:

- Drag index = (2 × 9) + (2 × 15) = 48
- Weight = (2 × 1970) + (2 × 281) = 4502 pounds

STA 4 and 6 (370-gallon fuel tanks)

In a similar manner, find that the drag index of one 370-gallon fuel tank, mounted on station 4 or 6 with single stores at 3 or 7, is 35 and its weight is 531 pounds (empty) or 3047 pounds (full). Note that no rack is required to install the tank on the wing.

For two tanks:

- Drag index = 2 × 35 = 70
- Weight = 2 × 3047 = 6094 pounds (full)

The total store loading drag index and configuration weight can now be determined by summing the individual store station values.

	Drag Index	Configuration Weight
• STA 1 and 9	2	390
• STA 2 and 8	22	616
• STA 3 and 7	48	4,502
• STA 4 and 6	70	6,094
Total	142	11,602 pounds

Using these values plus the basic aircraft drag index and weights, the drag index and start engine weight can be determined:

Drag Index

• Basic aircraft drag index	=	7	C
• Store loading drag index	=	142	
Drag index total	=	149	

Start Engine Weight

• Aircraft operating weight	=	21,168	C
• Internal usable fuel (JP-8)	=	7,116	C
• Conformal Fuel Tanks (JP-8)	=	3,056	
• Ammunition (full drum)	=	287	
• Chaff/flares (not loaded)	=	0	
• Configuration weight	=	11,602	
Total start engine weight	=	43,229 pounds	

NOTE

Assumed values for basic aircraft operating weight and drag index are used in the sample problems throughout this appendix in order to eliminate reworking the problems whenever the basic operating weight or drag index changes due to modifications. The sample problems are aids in using the appendix and are not necessarily applicable to specific configurations.

POSITION ERROR CORRECTION

A single nose-mounted pitot-static probe supplies static and total pressure information to the CADC, altimeter, and airspeed indicator. The CADC computes calibrated airspeed, true airspeed, true mach, and calibrated altitude and provides the required signals to drive the airspeed and altitude indications on the HUD.

The CADC provides corrected (calibrated) altitude signals to the altimeter when the altimeter is in ELECT. When the altimeter is in PNEU, it displays indicated (not corrected for position error) altitude. The airspeed indicator always displays indicated airspeed and mach number. Position error corrections are shown in figure C1-2.

REFER TO FIGURE C1-2.

Enter Position Error Correction – Airspeed and Altitude chart with desired calibrated airspeed (A), proceed vertically to desired pressure altitude lines (B), then proceed horizontally to read altitude correction (C) and airspeed correction (D). Subtract the corrections from the desired conditions to obtain indication reading. Mach position error corrections may be found in a similar manner.

SAMPLE PROBLEM.

A.	KCAS	=	380
B.	Pressure altitude	=	30,000 feet
C.	Altitude correction	=	175 feet
•	Altimeter reading	=	30,000 – 175 = 29,825 feet
D.	Airspeed correction	=	1.5 knots
•	Airspeed indicator reading	=	380 – 1.5 = 378.5 knots

AIRSPEED CONVERSION

Curves shown in figure C1-3 are presented as an aid for conversion between calibrated airspeed, true airspeed, and mach number. Fahrenheit/Centigrade temperature conversion is also shown.

REFER TO FIGURE C1-3.

To obtain mach numbers, enter Airspeed Conversion chart with calibrated airspeed (A). Proceed vertically to altitude (B) and horizontally left to read mach number (C).

To obtain KTAS, enter Airspeed Conversion chart with calibrated airspeed (A). Proceed vertically to altitude (B), then horizontally left to temperature (D), and then vertically upward or downward, as applicable, to read KTAS (E).

SAMPLE PROBLEM.

A.	KCAS	=	225
B.	Altitude	=	40,000 feet
C.	Mach number	=	0.75
D.	Temperature	=	–40°C
E.	KTAS	=	446

COMPRESSIBILITY CORRECTION TO AIRSPEED

Figure C1-4 is provided as an aid to converting calibrated airspeed into equivalent airspeed.

REFER TO FIGURE C1-4.

Enter Compressibility Correction to Airspeed chart with calibrated airspeed (A), proceed vertically upward to altitude (B) and proceed horizontally left to read compressibility correction (C). Note that the chart can also be entered at (B) with mach and altitude. Subtract the compressibility correction from calibrated airspeed to obtain equivalent airspeed.

SAMPLE PROBLEM.

A.	KCAS	=	300
B.	Altitude	=	30,000 feet
C.	Compressibility correction	=	15 knots
•	KEAS	=	300 – 15 = 285

MISCELLANEOUS CHARTS

STANDARD ATMOSPHERE, figure C1-5, and TEMPERATURE CORRECTION FOR COMPRESSIBILITY, figure C1-6, are included for information. No samples are provided for these charts since they are self-explanatory.

ANGLE OF ATTACK (AOA)

AOA data is provided in figure C1-7 for information. AOA data for altitudes from sea level to 60,000 feet and from 0.3-1.2 mach is shown.

REFER TO FIGURE C1-7.

Enter AOA chart with GW (A), proceed horizontally to altitude (B), vertically down to mach number (C), and horizontally left to read AOA (D).

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Altitude	=	30,000 feet
C.	Mach number	=	0.80
D.	AOA	=	4.3 degrees

AVAILABLE LOAD FACTOR

Load factors available with the LG handle in UP and the STORES CONFIG switch in CAT I or CAT III are presented in figure C1-8. The load factor data is presented as a function of altitude, mach, and GW and is valid for all temperatures, throttle settings, and DI. The load factor value obtained from this chart is based solely on the aerodynamic characteristics of the aircraft. Sustained load factor capabilities are presented in Part 8.

REFER TO FIGURE C1-8.

Determine either CAT I or CAT III loading. Enter Available Load Factor chart with mach (A). Proceed vertically to altitude (B) and then horizontally left to the GW baseline and parallel guidelines to GW (C). Finally, proceed left to read available load factor (D).

SAMPLE PROBLEMS (CAT I).

A. Mach = 0.6
B. Altitude = 20,000 feet
• KCAS = 275
C. GW = 23,000 pounds
D. Available load factor = 4.6g

A. Mach = 1.4
B. Altitude = 10,000 feet
• KCAS = 794 (obtained from figure C1-3)
C. GW = 28,000 pounds
D. Available load factor = 9.0g

SAMPLE PROBLEMS (CAT III).

A. Mach = 1.6
B. Altitude = 35,000 feet
• KCAS = 584
C. GW = 33,000 pounds
D. Available load factor = 5.1g

A. Mach = 0.5
B. Altitude = 30,000 feet
• KCAS = 184
C. GW = 28,000 pounds
D. Available load factor = 1.4g

A. Mach = 0.8
B. Altitude = Sea level
• KCAS = 529 (obtained from figure C1-3)
C. GW = 28,000 pounds
D. Available load factor = 9.0g

TURN CONVERSION

Figure C1-9 is provided as an aid for conversion between load factor, turn rate, turn radius, KTAS, and bank angle.

GROUND VEHICLE FRICTION READING-TO-RCR CONVERSION

Figure C1-10 is provided as an aid for conversion between ground vehicle friction reading and RCR/braking action level.

Drag Indexes and Weights — Basic Aircraft

DATA BASIS ESTIMATED

AIRCRAFT OPERATING WEIGHT — LB*	F-16C**	F-16D**
BASIC AIRCRAFT	21,200	22,300

*INCLUDES PILOT ([D] 2), OIL, UNUSABLE FUEL, TIP MISSILE LAUNCHERS AND CFTs.
**ALL WEIGHTS ARE APPROXIMATE. REFER TO INDIVIDUAL AIRCRAFT WEIGHT AND BALANCE HANDBOOK FOR ACTUAL AIRCRAFT WEIGHT.

DRAG INDEX (SUBSONIC/SUPERSONIC)*	F-16C	F-16D
BASIC AIRCRAFT	7/6	11/7

*AIM-9L TIP MISSILES ON 16S210 LAUNCHERS INCLUDED.

EXPENDABLES WEIGHT — LB	F-16C	F-16D
INTERNAL USABLE FUEL (JP-8)	7116	5874
CONFORMAL FUEL TANKS (CFT) USABLE FUEL (JP-8)	1528	1528
EXTERNAL USABLE FUEL (JP-8):	2040	2040
• 300-GALLON TANK (JP-8)	2516	2516
• 370-GALLON TANK (JP-8)	3961	3961
• 600-GALLON TANK (JP-8)		
CHAFF/FLARES:	48*	96*
GUN AMMO		
• FULL DRUM (511 ROUNDS)	287	287
• FIRED OUT (RETAINED AMMO/CASINGS, 511 ROUNDS)	130	130

*CHAFF/FLARE WEIGHT BASED ON 2 FULLY LOADED CHAFF MAGAZINES AND 2 FULLY LOADED FLARE MAGAZINES
**CHAFF/FLARE WEIGHT BASED ON 4 FULLY LOADED CHAFF MAGAZINES AND 4 FULLY LOADED FLARE MAGAZINES

Figure C1-1. (Sheet 1)

Drag Indexes and Weights — Suspension Equipment

DATA BASIS ESTIMATED

SUSPENSION EQUIPMENT	STATION	JETTISON WEIGHT LB	TOTAL WEIGHT LB	DRAG INDEX
ADAPTER (16S301)	2,3,7, OR 8	0	26	2
AIM-9 LAUNCHER (16S210)	1 OR 9	0	72	0
AIM-9 LAUNCHER (16S210) + ADAPTER (16S301)	2,3,7, OR 8	0	98	6
CENTERLINE PYLON* (16S951)	5	0	177	7
NONJETTISON (NJETT) FUEL PYLON*	4 OR 6	0	304	8
LANTIRN TARGETING POD PYLON (16S1150)	5R	0	42	3
LAU-88/A + WEAPON PYLON*	3 OR 7	468	749	29
LAU-88 A/A + WEAPON PYLON*	3 OR 7	476	757	24
LAU-117/A, A(V)1/A, A(V)3/A + WEAPON PYLON*	3 OR 7	130	411	20
LAU-118(V)4/A + WEAPON PYLON*	3 OR 7	120	401	17
LAU-129/A LAUNCHER	1 OR 9	0	87	1
LAU-129/A LAUNCHER + ADAPTER (16S301)	2,3,7, OR 8	0	113	6
TER (16S1750) + WEAPON PYLON*	3,4,6, OR 7	117 (123**)	398 (404**)	24
TER (66J45517) + WEAPON PYLON*	3,4,6, OR 7	93 (99**)	374 (380**)	24
WEAPON PYLON* (16S1700)	3,4,6, OR 7	0	281	15

*INCLUDES MAU-12C/A, D/A.
**WEIGHT IF BDU-33 ADAPTERS ARE INSTALLED.

Figure C1-1. (Sheet 2)

Drag Indexes and Weights — Individual Stores

DATA BASIS ESTIMATED

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
A/A 37U-36:				
TARGET STOWED	3 OR 7	PYLON	903	39
TARGET DEPLOYED	3 OR 7	PYLON	–	204
TOW REEL ONLY (TARGET/CABLE RELEASED)	3 OR 7	PYLON	495	29
AGM-65A, B	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1/A, A(V)3/A	464	13/8
AGM-65D	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1/A, A(V)3/A	493	13/8
AGM-65G	3 OR 7	LAU-117/A, A(V)1/A, A(V)3/A	672	8
AGM-84D-1	3 OR 7	PYLON WITH HIAK	1172	10
AGM-88B	3 OR 7	LAU-118(V)4/A	770	8
AIM-9P, P-1	1 OR 9	LAUNCHER	166	4*
AIM-9P-2, P-3, P-4, P-5, N, N-3	1 OR 9	LAUNCHER	178	4*
AIM-9L, M, S	1 OR 9	LAUNCHER	195	4*
AIM-9P, P-1	2,3,7, OR 8	LAUNCHER + ADAPTER	166	5
AIM-9P-2, P-3, P-4, P-5, N, N-3	2,3,7, OR 8	LAUNCHER + ADAPTER	178	5
AIM-9L, M, S	2,3,7, OR 8	LAUNCHER + ADAPTER	195	5
AIM-120B	1 OR 9	LAUNCHER	341	0
AIM-120B	2,3,7, OR 8	LAUNCHER + ADAPTER	341	4
AN/ASQ:				
-T-17 (P4A)	1 OR 9	LAUNCHER	122	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	122	3
-T-20 (P4AX)	1 OR 9	LAUNCHER	123	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	123	3
-T-25 (P4AM)	1 OR 9	LAUNCHER	125	2**
	2,3,7, OR 8	LAUNCHER + ADAPTER	125	3
ATM-84D-1	3 OR 7	PYLON WITH HIAK	1172	10

*USED FOR REMOVING WINGTIP AIM-9 MISSILE SINCE BASIC AIRCRAFT CONFIGURATION INCLUDES AIM-9'S AT STATIONS 1 AND 9. USING DRAG INDEX ZERO GIVES SLIGHTLY CONSERVATIVE RESULTS WITHOUT TIP MISSILES.

**USED FOR REPLACING WINGTIP AIM-9 MISSILE. DRAG INDEX IS 2 LESS THAN AIM-9 MISSILE AT STATION 1 OR 9.

Figure C1-1. (Sheet 3)

Drag Indexes and Weights — Individual Stores

DATA BASIS ESTIMATED

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
BDU-33B/B, D/B	3,4,6, OR 7	TER	24	1
BDU-50/B, A/B	3,4,6, OR 7	PYLON/TER	510	5/9
BL-755 MK 2	3,4,6, OR 7	PYLON/TER	610	19/23
BLU-107/B	3,4,6, OR 7	PYLON/TER	482	5/8
BLU-109/B	3 OR 7	PYLON	2020	12
CATM-84D-2	3 OR 7	PYLON WITH HIAK	1161	10
CATM-88B (WITH WINGS AND FINS)	3 OR 7	LAU-118(V)4/A	795	8
CATM-88B (WITHOUT WINGS AND FINS)	3 OR 7	LAU-118(V)4/A	733	8
CATM-120A (107), B (106)	1 OR 9	LAUNCHER	345	0
CATM-120A (107), B (106)	2,3,7, OR 8	LAUNCHER + ADAPTER	345	4
CBU-52B/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	785	20/24
CBU-58/B, A/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	800	20/24
CBU-71/B (SUU-30 H/B)	3,4,6, OR 7	PYLON/TER	800	20/24
CBU-87/B (SUU-65/B)	3,4,6, OR 7	PYLON/TER	950	18/22
GBU-10/B, A/B, C/B, D/B, E/B, F/B	3,4,6, OR 7	PYLON	2052	15
GBU-10G/B, H/B, J/B	3,4,6, OR 7	PYLON	2135	17
GBU-12/B, A/B, B/B, C/B, D/B, E/B	3,4,6, OR 7	PYLON	611	7
GBU-12B/B, C/B, D/B, E/B	3 OR 7	TER	611	10
GBU-24/B	3,4,6, OR 7	PYLON	2306	17
GBU-24A/B	3,4,6, OR 7	PYLON	2354	20
IRIS-T	2,3,7, OR 8	LAUNCHER + ADAPTER	198	4
ITM-88B	3 OR 7	LAU-118(V)4/A	770	8
LANTIRN POD:				
NAVIGATION	5L	PYLON	429*	32*
TARGETING	5R	PYLON	553	19

*WITH PYLON.

Figure C1-1. (Sheet 4)

Drag Indexes and Weights — Individual Stores

DATA BASIS ESTIMATED

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
LAU-3/A, B/A, C/A, D/A ROCKET LAUNCHER WITH:				
(19) M151	3,4,6, OR 7	PYLON/TER	496	14/20
(19) M156	3,4,6, OR 7	PYLON/TER	496	14/20
(19) MK 1	3,4,6, OR 7	PYLON/TER	418	14/20
(19) MK 5	3,4,6, OR 7	PYLON/TER	418	14/20
FIRED OUT (NO FWD FAIRING)	3,4,6, OR 7	PYLON/TER	76	26/39
EMPTY WITH FWD FAIRING	3,4,6, OR 7	PYLON/TER	78	14/20
LAU-68A/A, B/A ROCKET LAUNCHER WITH:				
(7) M151	3 OR 7	TER	215	9
(7) M156	3 OR 7	TER	215	9
(7) MK 1	3 OR 7	TER	194	9
(7) MK 5	3 OR 7	TER	194	9
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	67	17
EMPTY WITH FWD FAIRING	3 OR 7	TER	68	9
LAU-131/A ROCKET LAUNCHER- WITH:				
(7) M151	3 OR 7	TER	223	9
(7) M156	3 OR 7	TER	223	9
(7) MK 1	3 OR 7	TER	195	9
(7) MK 5	3 OR 7	TER	195	9
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	68	18
EMPTY WITH FWD FAIRING	3 OR 7	TER	69	9
LAU-5003/A ROCKET LAUNCHER- WITH:				
(19) CM-151 (CRV7)	3 OR 7	TER	530	20
(19) RA-79 (CRV7)	3 OR 7	TER	658	20
FIRED OUT (NO FWD FAIRING)	3 OR 7	TER	76	39
EMPTY WITH FWD FAIRING	3 OR 7	TER	78	20

Figure C1-1. (Sheet 5)

Drag Indexes and Weights — Individual Stores

DATA BASIS ESTIMATED

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
M129E2	3,4,6, OR 7	PYLON	229	16
MK 20 MOD 3,4	3,4,6, OR 7	PYLON/TER	490	11/14
MK 82 AIR	3,4,6, OR 7	PYLON/TER	540	7/11
MK 82 LDGP	3,4,6, OR 7	PYLON/TER	510	5/9
MK 82 (SNAKEYE)	3,4,6, OR 7	PYLON/TER	550	7/11
MK 84 AIR	3,4,6, OR 7	PYLON	2010	10
MK 84 LDGP	3,4,6, OR 7	PYLON	1970	9
MXU-648A/A, C/A (TRAVEL POD) (MAX CARGO WT IS 300 LB)	3,4,5,6, OR 7	PYLON/TER	108 (EMPTY)	10/10
SUU-20A/A, B/A WITH:			(A/A) (B/A)	
(6) BDU-33B/B, D/B	3,4,6, OR 7	PYLON	474 420	14
(6) MK 106	3,4,6, OR 7	PYLON	360 306	14
(4) M151	3,4,6, OR 7	PYLON	414 360	14
(6) BDU-33B/B, D/B+(4) M151	3,4,6, OR 7	PYLON	558 504	14
(6) MK 106+(4) M151	3,4,6, OR 7	PYLON	444 390	14
EMPTY	3,4,6, OR 7	PYLON	330 276	12
SUU-5003A/A, B/A WITH:			(A/A) (B/A)	
(6) BDU-33B/B, D/B	3,4,6, OR 7	PYLON	583 546	14
(6) MK 106	3,4,6, OR 7	PYLON	469 432	14
(4) CM-151 (CRV7)	3,4,6, OR 7	PYLON	561 524	14
(6) BDU-33B/B, D/B+(4) CM-151	3,4,6, OR 7	PYLON	705 668	14
(6) MK 106+(4) CM-151	3,4,6, OR 7	PYLON	591 554	14
(4) RA-79T (RA-82) (CRV7)	3,4,6, OR 7	PYLON	547 510	14
EMPTY	3,4,6, OR 7	PYLON	439 402	12

Figure C1-1. (Sheet 6)

Drag Indexes and Weights — Individual Stores

DATA BASIS ESTIMATED

NOTE: WEIGHT AND DRAG INDEXES DO NOT INCLUDE SUSPENSION EQUIPMENT. REFER TO SHEET 2.

STORE	STATION	RACK	WEIGHT LB (EACH STORE)	DRAG INDEX (EACH STORE)
TGM-65A, B	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1A, A(V)3/A	447	13/8
TGM-65D, G	3 OR 7	LAU-88/A, A/A, -117/A, A(V)1A, A(V)3/A	474	13/8
300-GALLON TANK (EMPTY/FULL):				
NO STORES AT 4 OR 6	5	PYLON	392*/2432	15
STORES AT 4 AND 6	5	PYLON	392*/2432	18
370-GALLON TANK (EMPTY/FULL):				
NO STORES AT 3 OR 7	4 OR 6	NONE	531*/3047	27
AIM-9'S AT 3 OR 7	4 OR 6	NONE	531*/3047	27
SINGLE RACKS OR STORES AT 3 OR 7	4 OR 6	NONE	531*/3047	35
MULTIPLE STORES AT 3 OR 7	4 OR 6	NONE	531*/3047	39
600-GALLON TANK (EMPTY/FULL):				
NO STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	455*/4416	20
AIM-9'S AT 3 OR 7	4 OR 6	PYLON (NJETT)	455*/4416	20
SINGLE RACKS OR STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	455*/4416	30
MULTIPLE STORES AT 3 OR 7	4 OR 6	PYLON (NJETT)	455*/4416	32
CFT TANK (EMPTY/FULL)	N/A	NONE	486*/2014	

300-/370-/600-GALLON/CFT TANK WEIGHTS BASED ON JP-8.
*INCLUDES UNUSABLE FUEL.

Figure C1-1. (Sheet 7)

Position Error Correction — Airspeed and Altitude

DATA BASIS ESTIMATED

NOTE: SUBTRACT CORRECTION FROM DESIRED CONDITION TO OBTAIN INDICATOR READING.

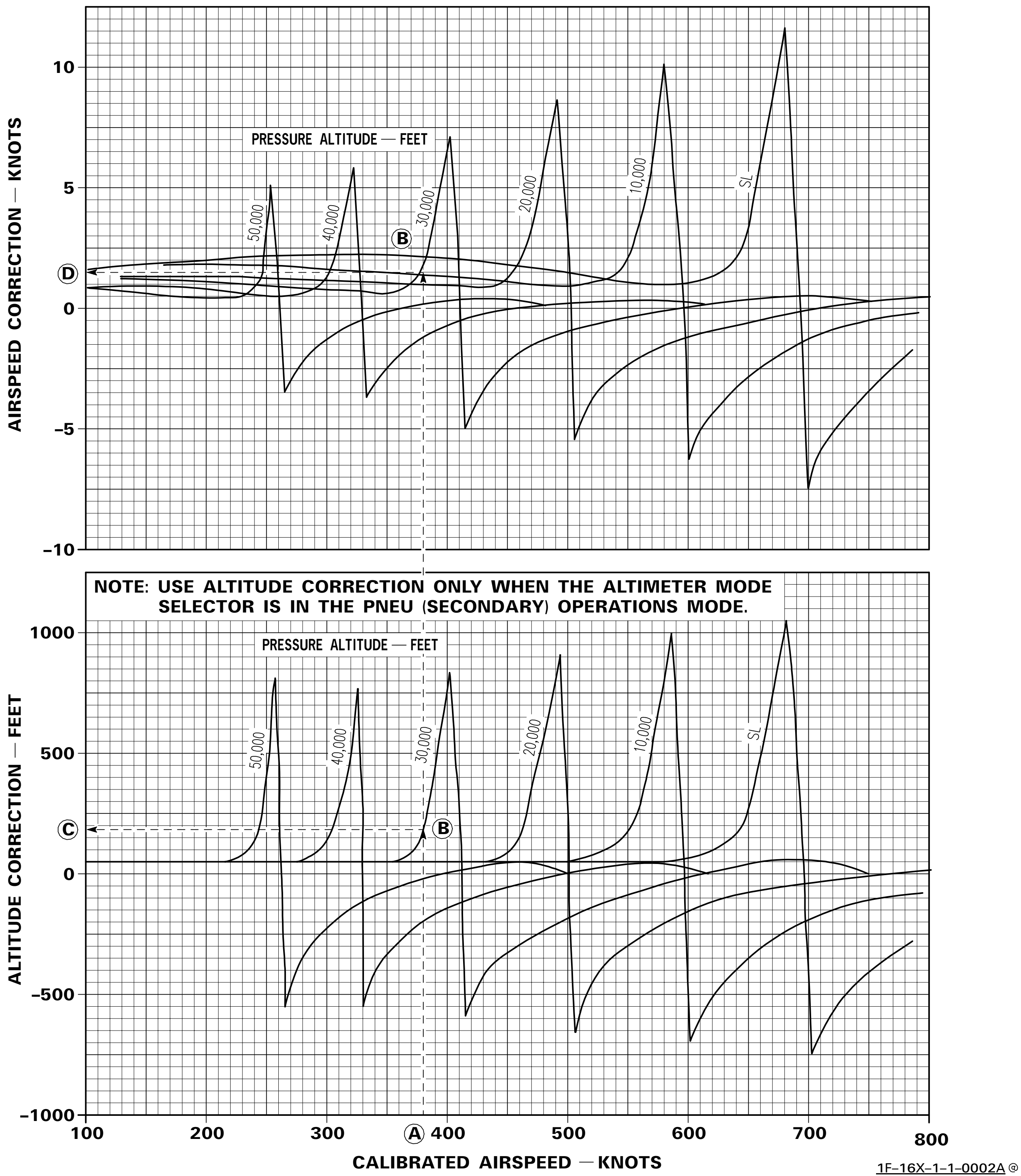


Figure C1-2. (Sheet 1)

Position Error Correction — Mach Number

DATA BASIS ESTIMATED

NOTE: SUBTRACT FROM THE TRUE MACH TO OBTAIN MACH INDICATOR READING.

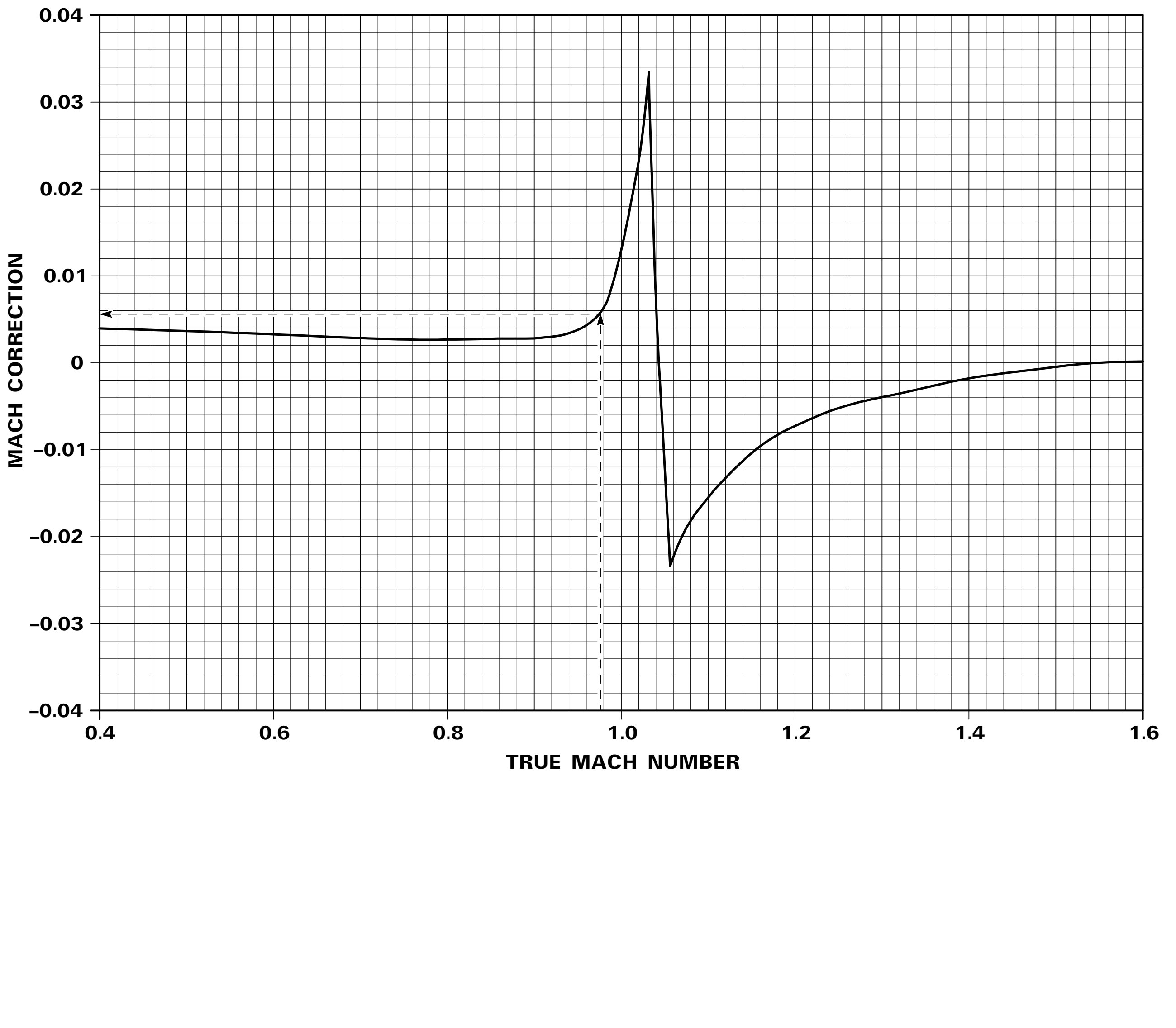
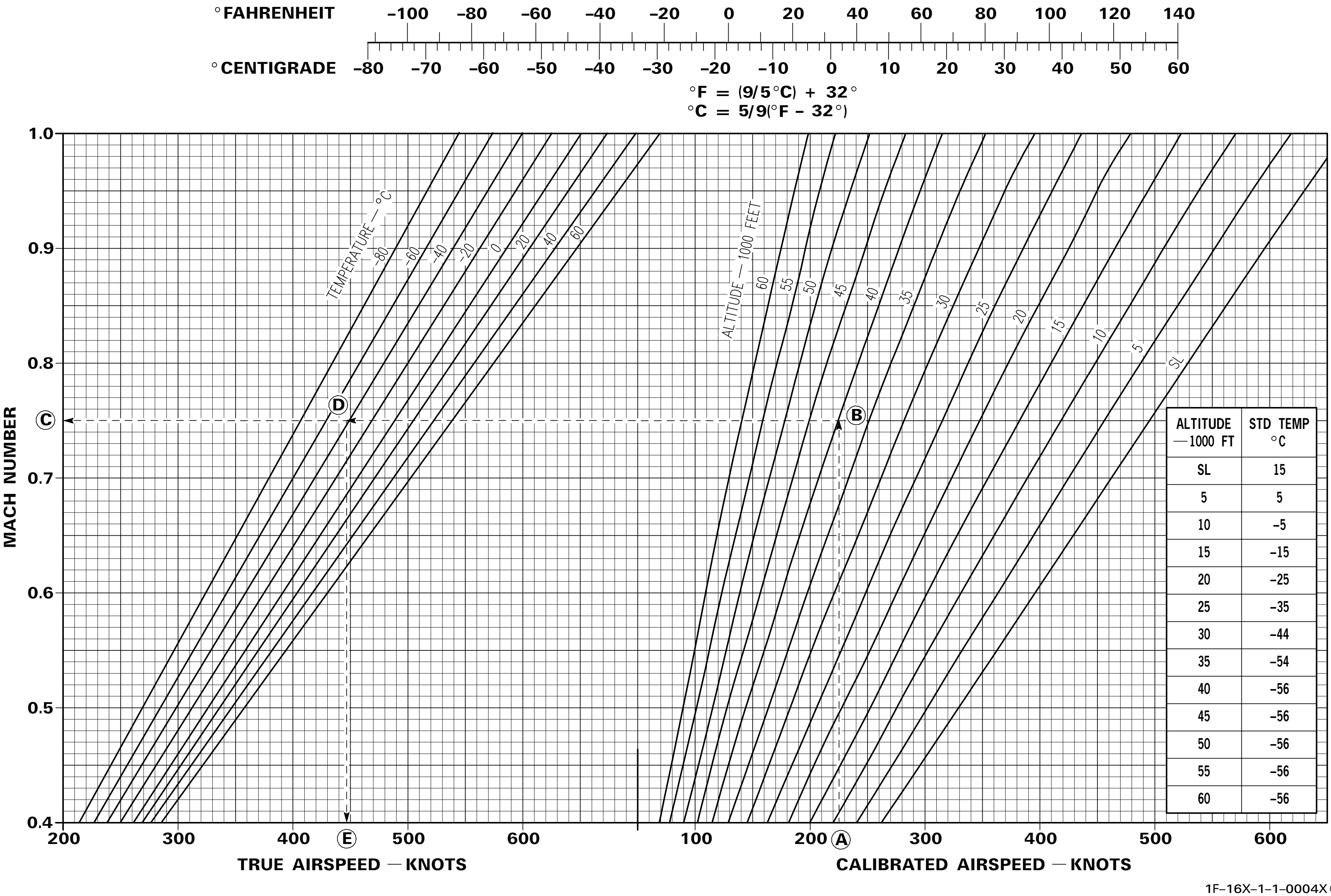


Figure C1-2. (Sheet 2)

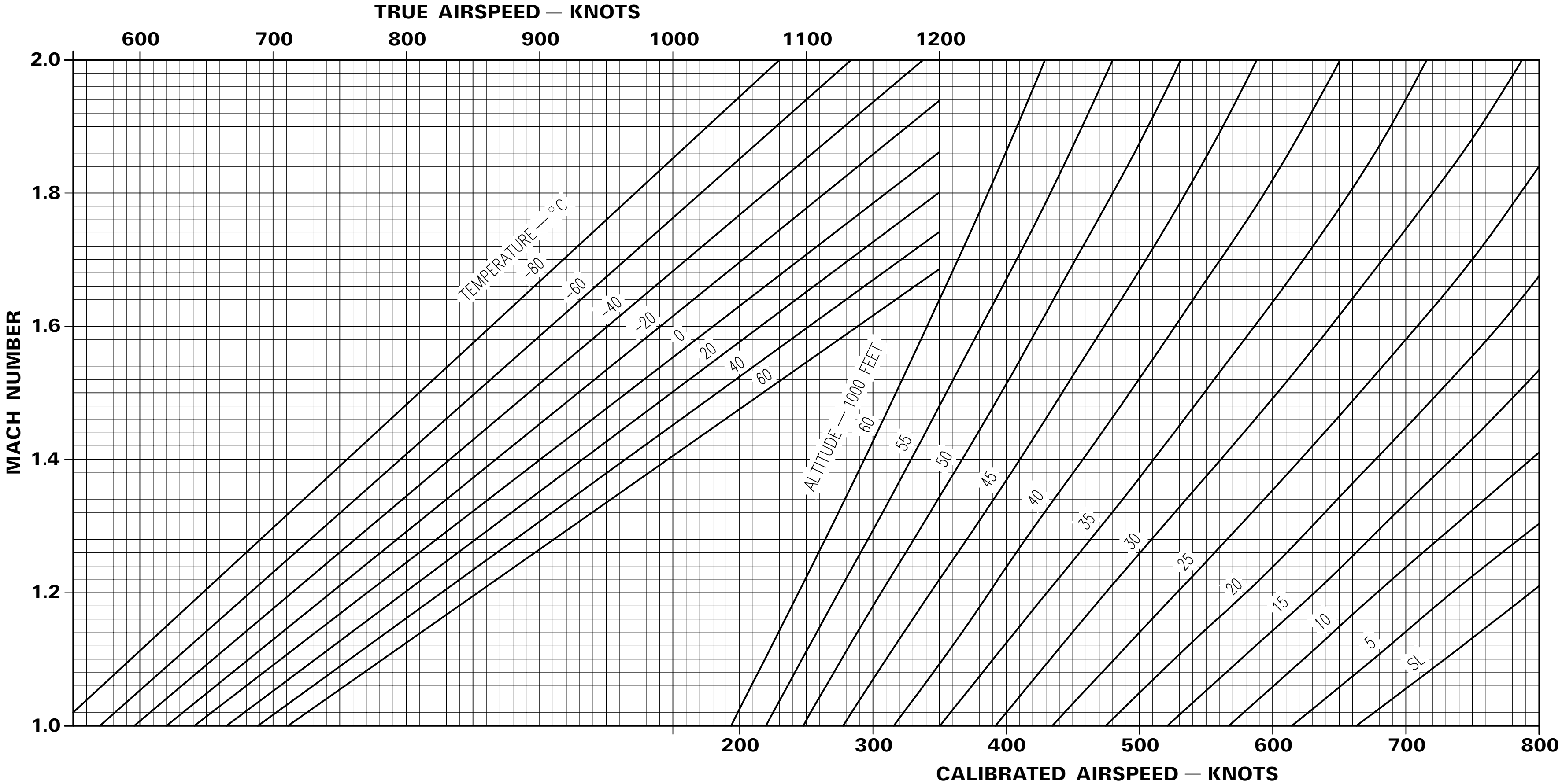
Airspeed Conversion



ALTITUDE —1000 FT	STD TEMP °C
SL	15
5	5
10	-5
15	-15
20	-25
25	-35
30	-44
35	-54
40	-56
45	-56
50	-56
55	-56
60	-56

Figure C1-3. (Sheet 1)

Airspeed Conversion



1F-16X-1-1-0005X@

Figure C1-3. (Sheet 2)

Compressibility Correction to Airspeed

NOTE: EQUIVALENT AIRSPEED = CALIBRATED AIRSPEED — CORRECTION.

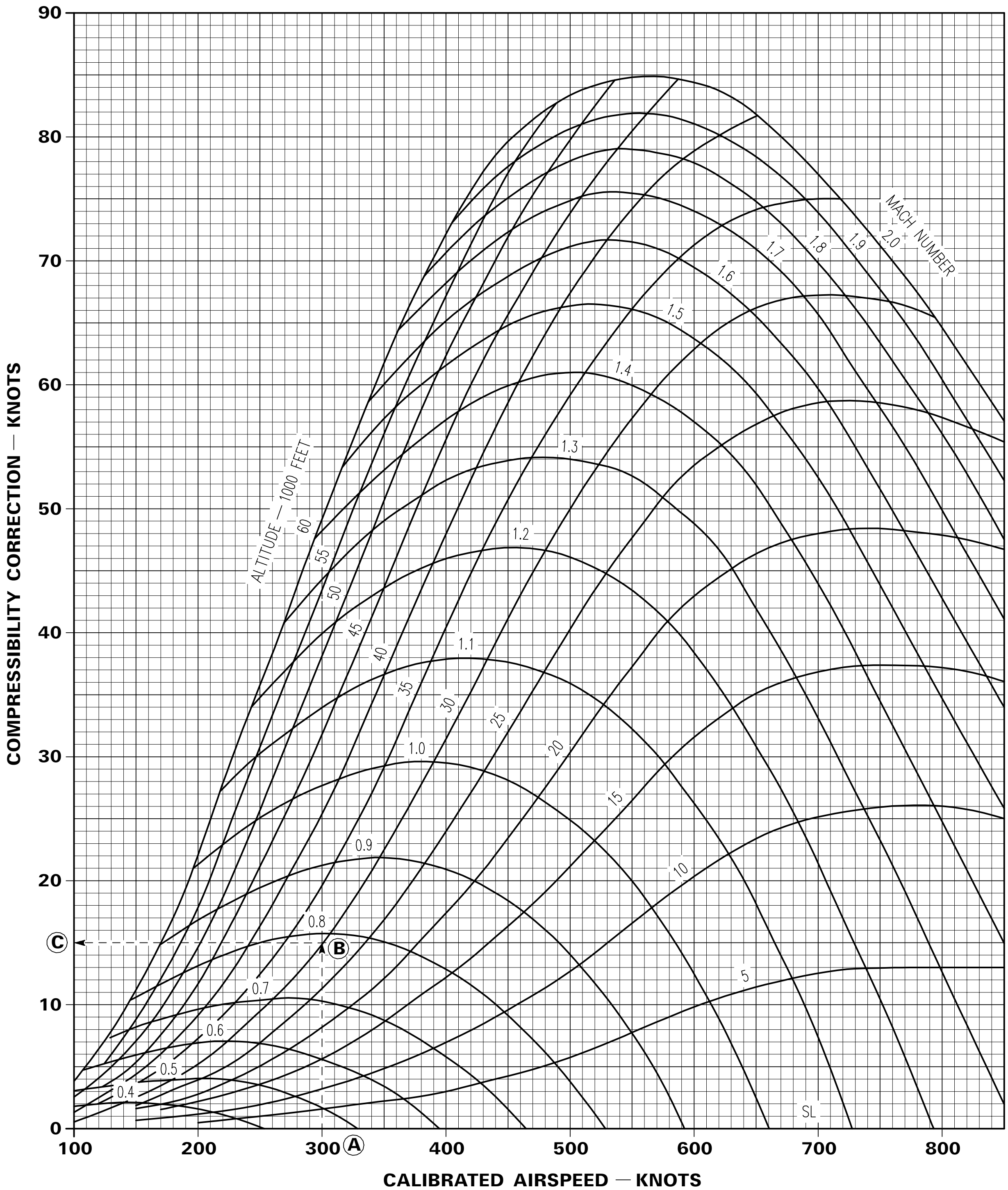


Figure C1-4.

Standard Atmosphere

DATA BASIS US STANDARD ATMOSPHERE, 1966

STANDARD SEA LEVEL AIR:

- **T = 59°F (15°C)**
- **P_o = 29.921 IN. OF HG**
- **W = 0.076475 LB/CU FT**
- **ρ_o = 0.0023769 SLUG/CU FT**
- **1 IN. OF HG = 70.726 LB/SQ FT**
- **1 IN. OF HG = 0.4912 LB/SQ IN.**
- **a_o = 1116.4 FT/SEC**
- **a_o = 661.48 KTS**

ALTITUDE FEET	DENSITY RATIO $\rho/\rho_o = \sigma$	$1/\sqrt{\sigma}$	AIR TEMPERATURE		SPEED OF SOUND KNOTS	PRESSURE	
			DEG F	DEG C		IN. OF HG	RATIO $P/P_o = \delta$
−2000	1.0598	0.9714	66.132	18.962	665.98	32.15	1.0745
−1000	1.0296	0.9855	62.566	16.981	663.73	31.02	1.0368
0	1.0000	1.0000	59.000	15.000	661.48	29.92	1.0000
1000	0.9711	1.0148	55.434	13.019	659.23	28.86	0.9644
2000	0.9428	1.0299	51.868	11.038	656.92	27.82	0.9298
3000	0.9151	1.0454	48.302	9.057	654.60	26.82	0.8962
4000	0.8881	1.0611	44.735	7.075	652.35	25.84	0.8637
5000	0.8617	1.0773	41.169	5.094	650.04	24.90	0.8320
6000	0.8359	1.0938	37.603	3.113	647.72	23.98	0.8014
7000	0.8106	1.1107	34.037	1.132	645.34	23.09	0.7716
8000	0.7860	1.1279	30.471	−0.849	643.02	22.22	0.7428
9000	0.7620	1.1456	26.905	−2.831	640.71	21.39	0.7148
10,000	0.7385	1.1637	23.338	−4.812	638.33	20.58	0.6877
11,000	0.7156	1.1822	19.772	−6.793	635.95	19.79	0.6614
12,000	0.6932	1.2011	16.206	−8.774	633.63	19.03	0.6360
13,000	0.6713	1.2205	12.640	−10.756	631.25	18.29	0.6113
14,000	0.6500	1.2403	9.074	−12.737	628.87	17.58	0.5875
15,000	0.6292	1.2606	5.508	−14.718	626.42	16.89	0.5643
16,000	0.6090	1.2815	1.941	−16.699	624.04	16.22	0.5420
17,000	0.5892	1.3028	−1.625	−18.681	621.59	15.57	0.5203
18,000	0.5699	1.3246	−5.191	−20.662	619.21	14.94	0.4994
19,000	0.5511	1.3470	−8.757	−22.643	616.76	14.34	0.4791
20,000	0.5328	1.3700	−12.323	−24.624	614.32	13.75	0.4595
21,000	0.5150	1.3935	−15.889	−26.605	611.87	13.18	0.4406
22,000	0.4976	1.4176	−19.456	−28.587	609.42	12.64	0.4223
23,000	0.4807	1.4424	−23.022	−30.568	606.91	12.11	0.4046
24,000	0.4642	1.4678	−26.588	−32.549	604.46	11.60	0.3876
25,000	0.4481	1.4938	−30.154	−34.530	601.95	11.10	0.3711
26,000	0.4325	1.5206	−33.720	−36.511	599.43	10.63	0.3552
27,000	0.4173	1.5480	−37.286	−38.492	596.92	10.17	0.3398
28,000	0.4025	1.5762	−40.852	−40.473	594.41	9.725	0.3250
29,000	0.3881	1.6052	−44.419	−42.455	591.89	9.297	0.3107

Figure C1-5. (Sheet 1)

Standard Atmosphere

DATA BASIS US STANDARD ATMOSPHERE, 1966

STANDARD SEA LEVEL AIR:

- **T = 59°F (15°C)**
- **P_o = 29.921 IN. OF HG**
- **W = 0.076475 LB/CU FT**
- **ρ_o = 0.0023769 SLUG/CU FT**
- **1 IN. OF HG = 70.726 LB/SQ FT**
- **1 IN. OF HG = 0.4912 LB/SQ IN.**
- **a_o = 1116.4 FT/SEC**
- **a_o = 661.48 KTS**

ALTITUDE FEET	DENSITY RATIO $\rho/\rho_o = \sigma$	$1/\sqrt{\sigma}$	AIR TEMPERATURE		SPEED OF SOUND KNOTS	PRESSURE	
			DEG F	DEG C		IN. OF HG	RATIO $P/P_o = \delta$
30,000	0.3741	1.6349	−47.985	−44.436	589.31	8.885	0.2970
31,000	0.3605	1.6654	−51.551	−46.417	586.80	8.488	0.2837
32,000	0.3473	1.6968	−55.117	−48.398	584.22	8.106	0.2709
33,000	0.3345	1.7291	−58.683	−50.379	581.64	7.737	0.2586
34,000	0.3220	1.7623	−62.249	−52.361	579.06	7.382	0.2467
35,000	0.3099	1.7964	−65.816	−54.342	576.41	7.041	0.2353
36,089*	0.2971	1.8347	−69.700	−56.500	573.57	6.683	0.2234
37,000	0.2844	1.8753	−69.700	−56.500	573.57	6.397	0.2138
38,000	0.2710	1.9209	−69.700	−56.500	573.57	6.097	0.2038
39,000	0.2583	1.9677	−69.700	−56.500	573.57	5.811	0.1942
40,000	0.2462	2.0155	−69.700	−56.500	573.57	5.538	0.1851
41,000	0.2346	2.0645	−69.700	−56.500	573.57	5.278	0.1764
42,000	0.2236	2.1148	−69.700	−56.500	573.57	5.030	0.1681
43,000	0.2131	2.1662	−69.700	−56.500	573.57	4.794	0.1602
44,000	0.2031	2.2189	−69.700	−56.500	573.57	4.569	0.1527
45,000	0.1936	2.2728	−69.700	−56.500	573.57	4.355	0.1455
46,000	0.1845	2.3281	−69.700	−56.500	573.57	4.151	0.1387
47,000	0.1758	2.3848	−69.700	−56.500	573.57	3.956	0.1322
48,000	0.1676	2.4428	−69.700	−56.500	573.57	3.770	0.1260
49,000	0.1597	2.5022	−69.700	−56.500	573.57	3.563	0.1201
50,000	0.1522	2.5630	−69.700	−56.500	573.57	3.425	0.1145
51,000	0.1451	2.6254	−69.700	−56.500	573.57	3.264	0.1091
52,000	0.1383	2.6892	−69.700	−56.500	573.57	3.111	0.1040
53,000	0.1318	2.7546	−69.700	−56.500	573.57	2.965	0.09909
54,000	0.1256	2.8216	−69.700	−56.500	573.57	2.826	0.09444
55,000	0.1197	2.8903	−69.700	−56.500	573.57	2.693	0.09001
56,000	0.1141	2.9606	−69.700	−56.500	573.57	2.567	0.08578
57,000	0.1087	3.0326	−69.700	−56.500	573.57	2.446	0.08176
58,000	0.1036	3.1063	−69.700	−56.500	573.57	2.331	0.07792
59,000	0.09877	3.1819	−69.700	−56.500	573.57	2.222	0.07426
60,000	0.09414	3.2593	−69.700	−56.500	573.57	2.118	0.07078
61,000	0.08972	3.3386	−69.700	−56.500	573.57	2.018	0.06746
62,000	0.08551	3.4198	−69.700	−56.500	573.57	1.924	0.06429
63,000	0.08150	3.5029	−69.700	−56.500	573.57	1.833	0.06127
64,000	0.07767	3.5881	−69.700	−56.500	573.57	1.747	0.05840
65,000	0.07403	3.6754	−69.700	−56.500	573.57	1.665	0.05566

*Tropopause

Figure C1-5. (Sheet 2)

Temperature Correction for Compressibility

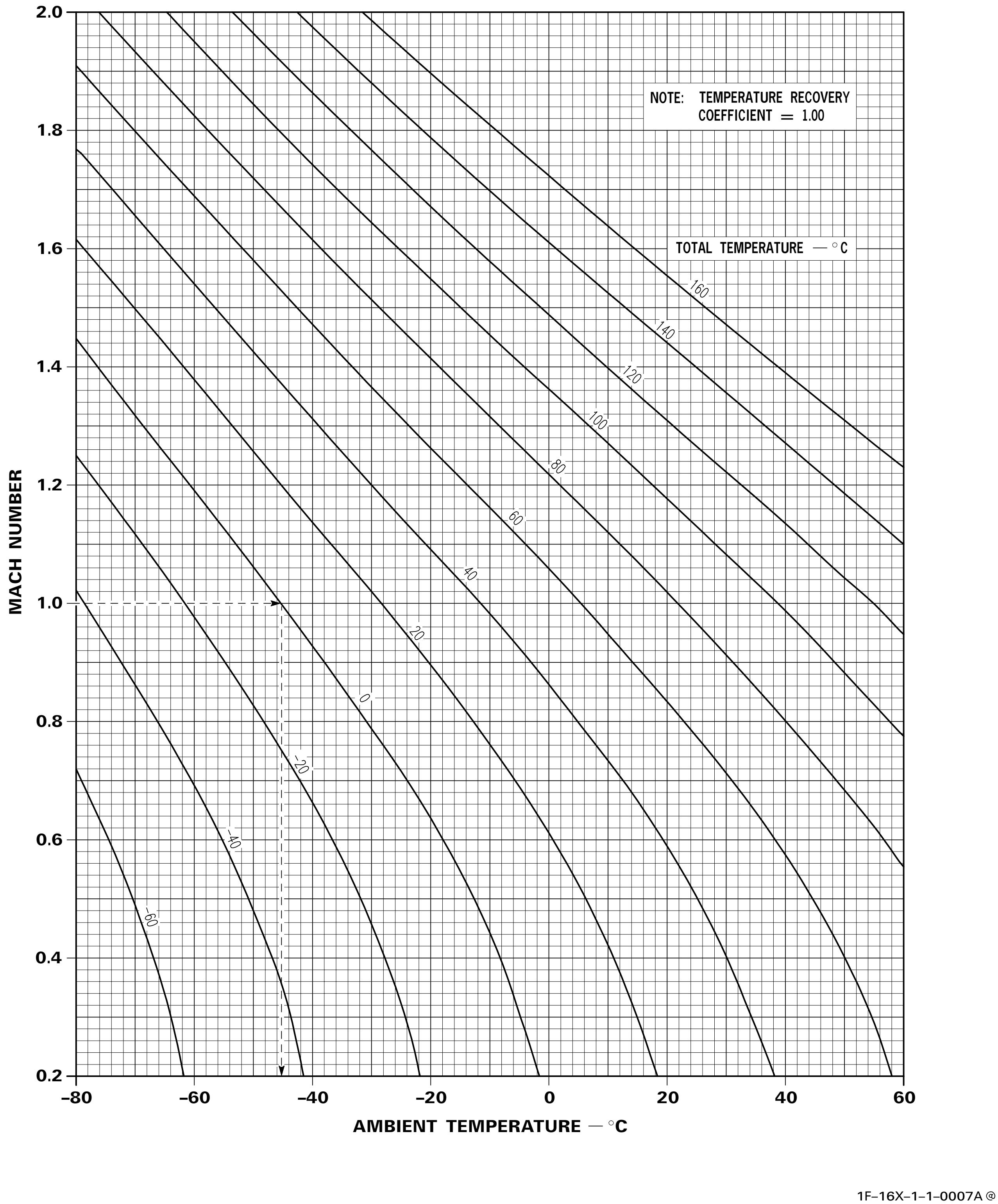


Figure C1-6.

Angle of Attack

DATA BASIS ESTIMATED

CONFIGURATION:
- LG — UP
- ALL DRAG INDEXES

CONDITIONS:
- 1G LEVEL FLIGHT
- NO THRUST EFFECTS INCLUDED

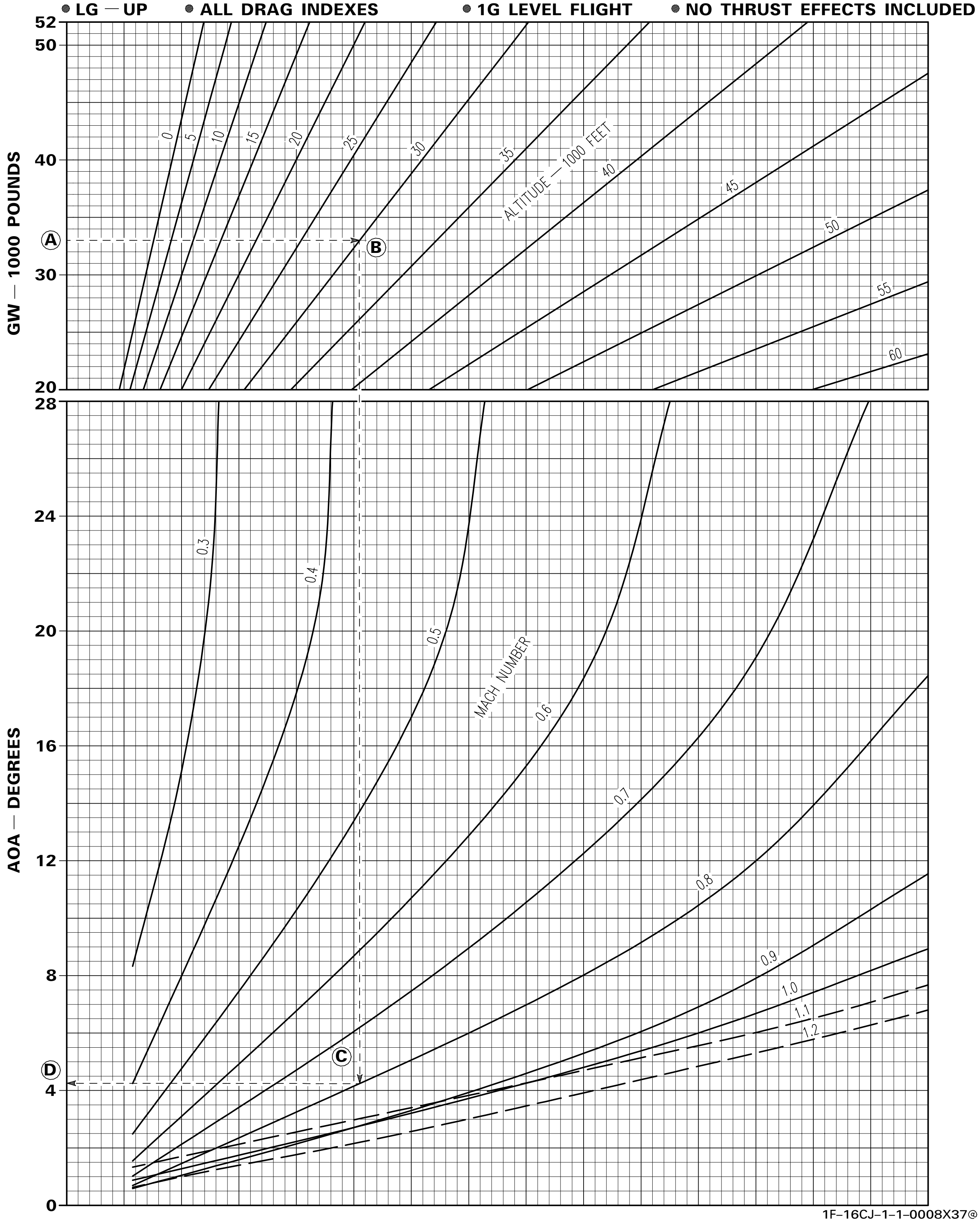


Figure C1-7.

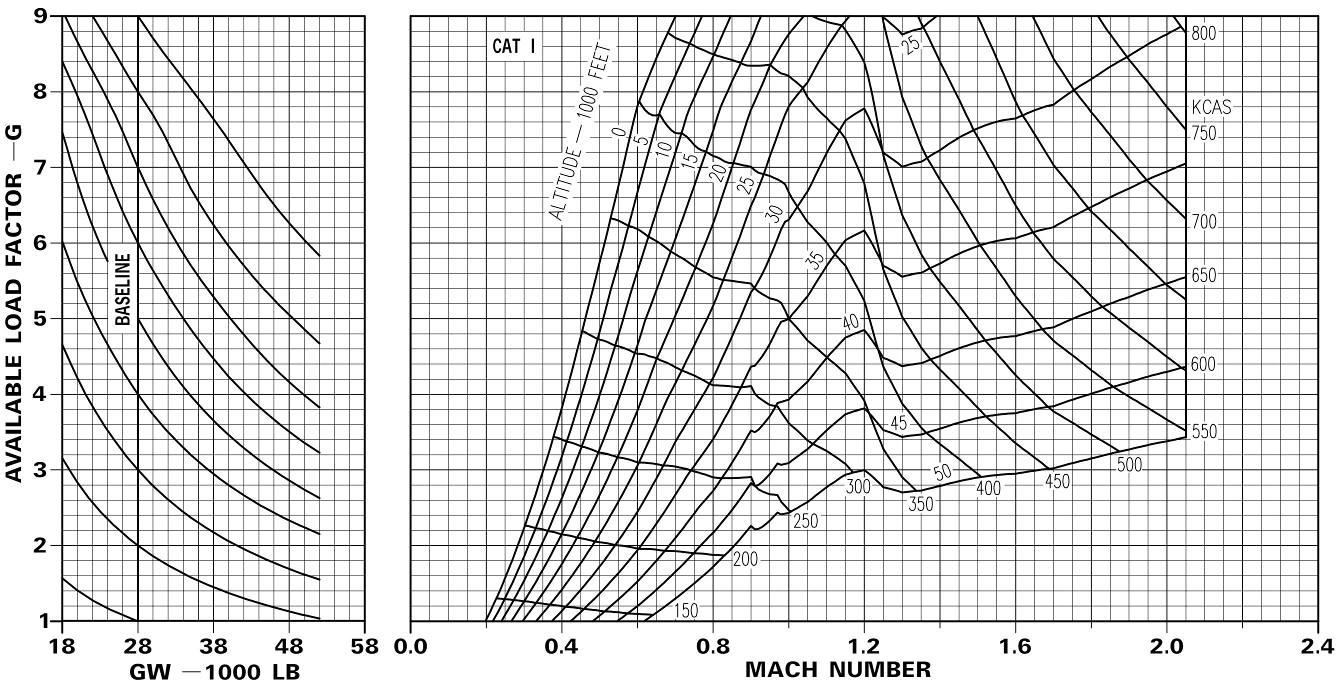
Available Load Factor

DATA BASIS ESTIMATED — **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- LG — UP

CONDITIONS:
- ALL TEMPERATURES
- ALL THROTTLE SETTING

NOTES:
- REFER TO SECTION V FOR G LIMITATIONS.
- KCAS ON 9.0G LIMITER IS INACCURATE. (REFER TO FIGURE C1–3.)



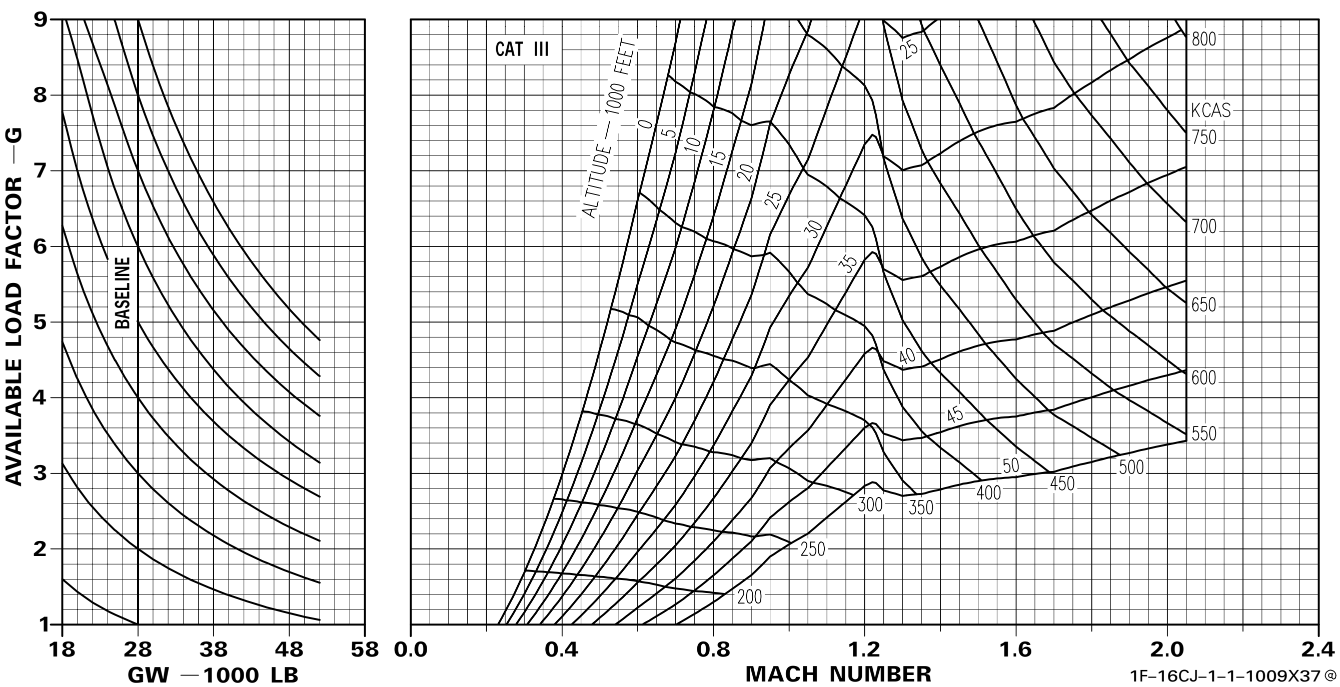


Figure C1-8.

Turn Conversion

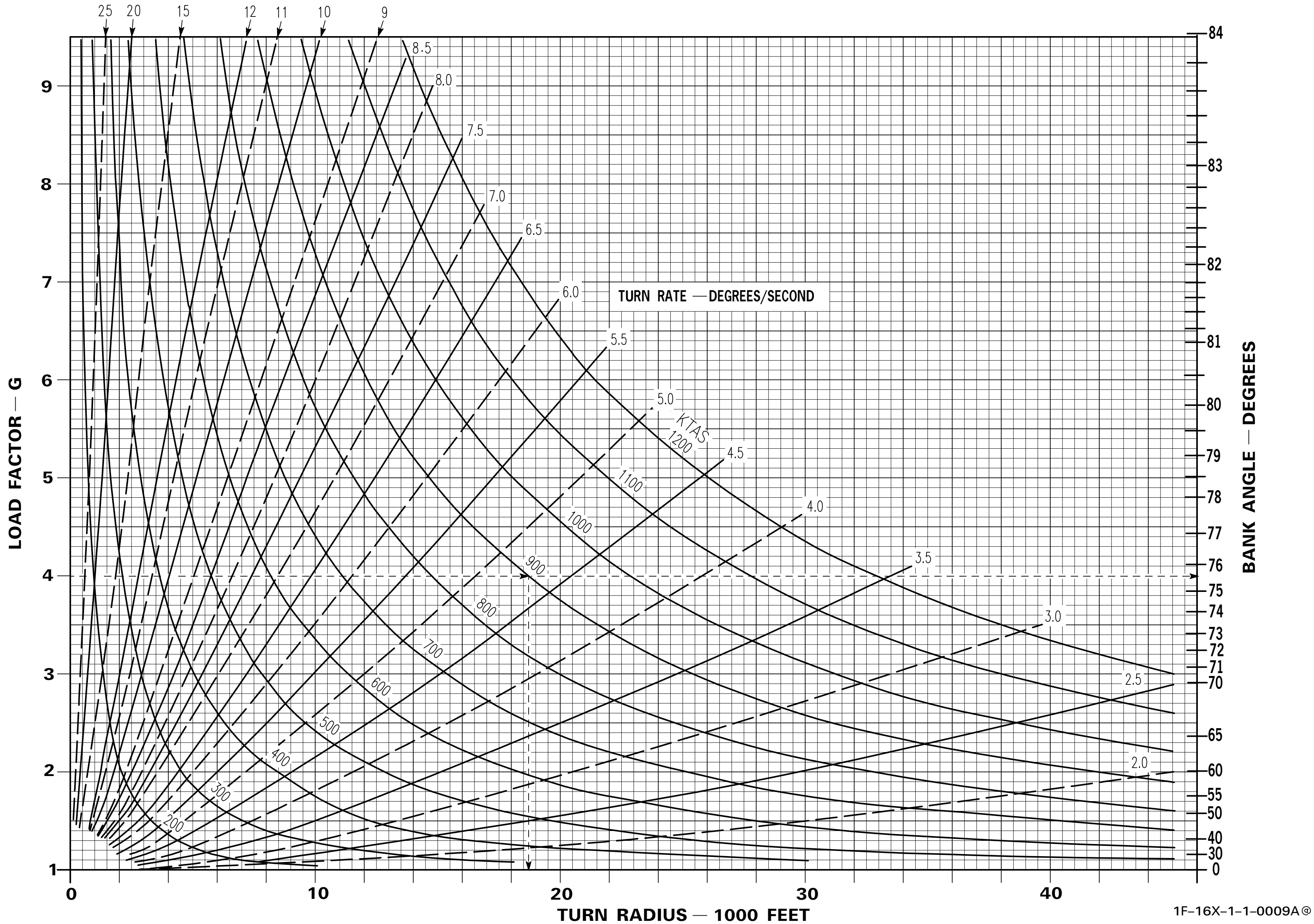


Figure C1-9.

Ground Vehicle Friction Reading–To–RCR Conversion

NOTES:

- **IN MANY AREAS, GROUND VEHICLE FRICTION READING IS THE ONLY AVAILABLE MEASURE FOR RUNWAY BRAKING ACTION.**
- **NORMALLY THE GROUND VEHICLE FRICTION READING, ALSO REFERRED TO AS BRAKING ACTION COEFFICIENT, IS GIVEN AS WHOLE NUMBERS, NOT AS DECIMALS (I.E., 40 INSTEAD OF 0.40).**

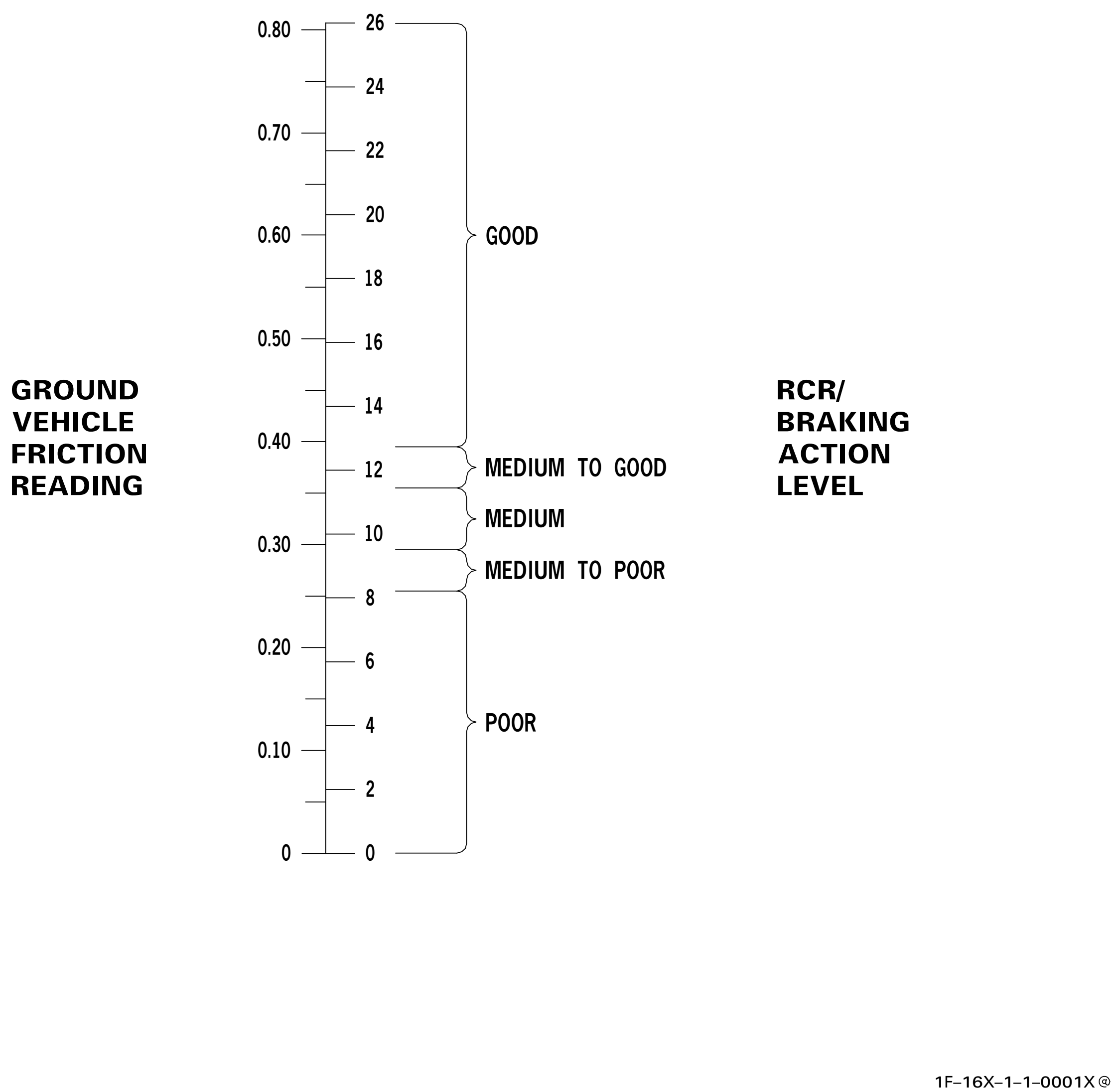


Figure C1-10.

PART 2 – TAKEOFF

TABLE OF CONTENTS

LIST OF CHARTS

TAKEOFF DATA

All data needed for takeoff planning is presented in this section. Takeoff data is presented for MIL and MAX AB throttle settings. For the purpose of Part 2, MIL thrust is called non-AB and MAX AB thrust is called AB. All data is based on normal flap positions (LEF's are at – 2 degrees and TEF's are at 20 degrees down while weight is on the MLG). Rotation speed, takeoff speed, ground run distance, acceleration check speed, maximum refusal speed, and crosswind data may be determined from these charts. Effects of wind, temperature, pressure altitude, runway slope and length, drag index, and RCR are included on appropriate charts.

DEFINITIONS OF TERMS

Takeoff factor – A computed number which is a function of engine thrust, temperature, and altitude. It is used as a control parameter for most charts in this section.

Rotation speed – Airspeed at which rotation to liftoff attitude should be started.

Takeoff speed – Airspeed at which the main tires leave the ground.

Takeoff ground run distance (also takeoff distance) – Ground run in feet from brake release to takeoff speed.

Refusal speed – Maximum airspeed that can be attained and still stop on remaining runway should takeoff be aborted.

Minimum AB blowout speed – Minimum airspeed at which an AB blowout can occur and still reach takeoff speed within the remaining runway length using non-AB thrust.

Runway slope – Change in runway elevation divided by runway length multiplied by 100 (expressed in percent uphill or downhill).

Aerodynamic braking (three-point attitude) – Use of fully opened speedbrakes and maximum horizontal tail deflection (without raising nose tire from runway) to increase deceleration. (Data base for aborted takeoff.)

Maximum effort braking – A single continuous wheel brake application using maximum pedal pressure consistent with maintaining directional control (anti-skid on) in conjunction with aerodynamic braking and drag chute.

DATA BASIS FOR CHARTS

Estimated aerodynamic and propulsion data based on wind tunnel and flight test results was used to generate the information presented in this section. Changes in LEF's positions and engine bleed requirements for weight on or off LG have been accounted for, as appropriate. Assumptions and approximations made during the construction of each chart are discussed along with the chart.

TAKEOFF PLANNING

Careful takeoff planning is essential from a standpoint of flight safety and mission success. Proper planning will permit maximum use of the capability of the aircraft to take off with heavy payloads while maintaining adequate safety margins. Takeoff planning comprises the following:

1. Determine aircraft configuration (total aircraft takeoff GW and drag index).
2. Obtain runway conditions for expected takeoff time (pressure altitude, temperature, windspeed, wind direction, length, slope, etc.).
3. Compute appropriate data.

This information will permit decisions to be made regarding downloading or continuing or aborting takeoff in the event of an emergency. Each chart is discussed in detail in the following paragraphs. An example takeoff planning problem is worked in conjunction with the discussion. The following typical aircraft and field information is normally obtained before using the charts:

- Takeoff GW (aircraft operating weight plus fuel, ammo, and stores) = 33,000 pounds (Allow for ground operation fuel consumption; refer to Part 3) (Normal taxi operations require approximately 25 pounds of fuel per minute)
- Stores loading = Two AIM-9L missiles at stations 1 and 9, two MK 84 bombs at stations 3 and 7, two 370-gallon fuel tanks at stations 4 and 6
- Takeoff CG = Refer to Weight and Balance Form F (DD Form 365-4)
- Drag index = Refer to T.O. GR1F-16CJ-1-2, STORES LIMITATIONS
- Runway pressure altitude = 2000 feet
- Runway temperature = 42°C
- Runway length = 6000 feet (available length)
- Runway conditions = Dry concrete (RCR = 23)
- Runway slope = 1 percent (uphill)
- Runway wind = 10 knots (headwind)

TAKEOFF FACTOR

The takeoff factor concept of presenting takeoff performance is used to simplify chart presentations. The takeoff factor is a computed number and is common to all charts for a given thrust setting, pressure altitude, and temperature.

REFER TO FIGURE C2-1.

Enter the chart with runway temperature (A). Proceed horizontally to pressure altitude (B) and then vertically down to read MIL takeoff factor (C) or MAX AB takeoff factor (D).

SAMPLE PROBLEM.

A. Runway temperature = 42°C
B. Pressure altitude = 2000 feet
C. MIL takeoff factor = 2.54
D. MAX AB takeoff factor = 1.44

TAKEOFF SPEED

Takeoff and rotation speeds are obtained from figure C2-2.

REFER TO FIGURE C2-2.

Enter chart with takeoff GW (A), proceed vertically to takeoff speed line (B), and proceed horizontally left to takeoff speed (C) for 35 percent CG. Then compute takeoff and rotation speeds for the actual takeoff CG. Next, enter inset at ambient temperature (F), proceed vertically to altitude (G), and then proceed horizontally left to maximum allowable takeoff GW (H).

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	CG	=	37.0 percent
C.	Takeoff speed at 35.0 percent CG	=	170 KIAS
D.	Takeoff speed at 37.0 percent CG: 170 – (0.8 × 2.0)	=	168 KIAS
E.	Rotation speed:		
	• Non-AB	=	158 KIAS
	• AB	=	153 KIAS

Rotation to 8 degrees pitch angle for lift-off increases takeoff speed 8 percent.

D.	Takeoff speed at 37.0 percent CG: 168 × 1.08	=	181 KIAS
E.	Rotation speed:		
	• Non-AB	=	171 KIAS
	• AB	=	166 KIAS
F.	Ambient temperature	=	40° C
G.	Altitude	=	4000 feet
H.	Maximum allowable takeoff GW	=	44,900 pounds

The takeoff GW is within the maximum allowable takeoff GW limit.

For a takeoff GW of 47,000 pounds:

I.	GW	=	47,000 pounds
J.	Takeoff speed	=	206 KIAS
F.	Ambient temperature	=	40° C
G.	Altitude	=	4000 Feet
H.	Maximum allowable takeoff GW	=	44,900 pounds

The takeoff GW is greater than the maximum allowable takeoff GW; therefore, the MLG tire limit speed is exceeded.

For takeoff speed corrections with roll trim other than zero, refer to TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES, this part.

TAKEOFF DISTANCE

Distance from brake release to takeoff speed may be determined from figure C2-3. Because the brakes cannot hold the aircraft when takeoff thrust is applied, takeoff thrust should be selected as quickly as practical after brake release. Thrust buildup to takeoff thrust is considered in the takeoff distance. Effects of GW, CG, drag index, wind, and runway slope are given on the chart.

REFER TO FIGURE C2-3.

Enter the chart with takeoff factor (A), proceed horizontally to GW (B), then vertically down to CG baseline, and follow guideline to CG (C). Proceed downward to drag index baseline and parallel guidelines to drag index (D). Proceed downward to slope baseline and parallel guideline to slope (E); continue to wind baseline, again parallel guidelines to wind (F), and finally proceed down to read takeoff distance (G).

SAMPLE PROBLEM.

A.	Non-AB takeoff factor	=	2.54
B.	GW	=	33,000 pounds
C.	CG	=	35.5 percent
D.	Drag index	=	150
E.	Slope	=	1 percent (uphill)
F.	Wind	=	10 knots (headwind)
G.	Takeoff distance	=	4950 feet

Using an AB takeoff factor of 1.44, takeoff distance is 2664 feet.

Rotation to 8 degrees pitch angle for lift-off increases takeoff distance 18 percent.

G.	Takeoff distance:		
	• Non-AB 4950 × 1.18	=	5841 feet
	• AB 2664 × 1.18	=	3144 feet

Because of the short runway (6000 feet) and high GW combination, MAX AB should be used.

ACCELERATION CHECK SPEED

Airspeed during takeoff ground roll is presented in figure C2-4. Airspeed from start of takeoff roll or between any two points during takeoff roll can be checked. Takeoff thrust should be selected as quickly as practical after brake release in order to minimize distance covered during engine acceleration. Reliable HUD airspeed indications should begin at about 50 knots.

REFER TO FIGURE C2-4.

Enter chart with takeoff factor (A), proceed horizontally to the right to a distance line (B), down to the GW baseline and parallel the nearest weight guideline to GW (C), down to drag index baseline and parallel the nearest guideline to drag index (D), down to wind baseline and parallel nearest guideline to wind (E), down to slope baseline and parallel nearest guideline to slope (F), and finally down to read acceleration check speed (G).

SAMPLE PROBLEM.

A.	Takeoff factor (AB)	=	1.91
B.	Distance from brake release	=	1500 feet
C.	GW	=	33,000 pounds
D.	Drag index	=	150
E.	Wind	=	10 knots (headwind)
F.	Slope	=	1 percent (uphill)
G.	Acceleration check speed	=	126 KIAS

REFUSAL SPEED

Runway conditions have a significant effect on stopping performance. Runway conditions are shown on the chart by representative values of RCR. Refusal speed for dry runway conditions, dry concrete (RCR = 23) and dry (RCR = 16) is presented in figures C2-5 and C2-6, sheet 1. Refusal speed for wet runway conditions, wet concrete (RCR = 18) and wet (RCR = 12) is presented in figures C2-5 and C2-6, sheet 2. Refusal speed for loose snow (RCR = 8) and smooth ice (RCR = 4) is presented in figures C2-5 and C2-6, sheet 3. Data for measured RCR not provided on the charts can be obtained by interpolation. For wet runways, interpolate between wet concrete (RCR = 18) and wet (RCR = 12). For runways with no liquid water present, interpolate between dry concrete (RCR = 23), dry (RCR = 16), snow (RCR = 8), and icy (RCR = 4). If RCR is unknown and runway is wet, use (RCR = 18) for wet concrete and (RCR = 12) for wet asphalt. The wet runway effects only consider the effects of incipient hydroplaning. Actual hydroplaning effects are not shown. Effects of runway length, wind, and slope are also shown. Drag index effects are negligible. Certain heavy GW/low RCR combinations can result in the refusal speed for a heavy GW aircraft being higher than the refusal speed for a light GW aircraft. Three-point aerodynamic braking is used until airspeed is reduced to maximum brake application speed.

Refusal speeds with drag chute are presented in figures A2-7 and A2-8 for dry concrete runways. The drag chute is deployed at refusal speed. Refer to Section V for limits.

REFER TO FIGURE C2-6.

Enter appropriate chart with takeoff factor (A), proceed horizontally left to GW (B) and then vertically up to runway length (C). From there, proceed horizontally right to wind baseline and parallel nearest guideline to wind (D), and then horizontally right to slope baseline and parallel nearest guideline to slope (E). Finally, proceed horizontally right to read refusal speed (dry runway RCR = 23) (F).

SAMPLE PROBLEM.

A.	Takeoff factor (AB)	=	1.91
B.	GW	=	33,000 pounds
C.	Available runway length	=	6000 feet
D.	Wind	=	10 knots (headwind)
E.	Slope	=	1 percent (uphill)
F.	Refusal speed (dry runway)	=	149.5 KIAS

NOTE

Maximum effort braking should be applied when airspeed is below the maximum brake application speed obtained from figure C2-12.

MINIMUM AB BLOWOUT SPEED

An AB takeoff can be safely continued after an AB blowout only if minimum AB blowout speed is attained prior to the blowout. If the engine instruments indicate normal non-AB operation after the blowout at minimum AB blowout speed, the takeoff can be continued and takeoff speed attained within the remaining runway length. Figure C2-9 contains data needed to determine minimum AB blowout speed.

REFER TO FIGURE C2-9.

Enter chart with MAX AB takeoff factor (A), proceed to the right to GW (B), then down to drag baseline and follow guidelines to drag index (C), down to wind baseline and follow guidelines to wind (D), and down to slope baseline and follow guidelines to slope (E). From (E), proceed down to runway length baseline, follow guidelines to runway length (F), and then proceed to the left to GW baseline. Follow guidelines to GW and finally to the left to read minimum MAX AB blowout speed (G).

SAMPLE PROBLEM.

A.	MAX AB takeoff factor	=	1.91
B.	GW	=	33,000 pounds
C.	Drag index	=	150
D.	Wind	=	10 knots (headwind)
E.	Slope	=	1 percent (uphill)
F.	Available runway length	=	4000 feet
G.	Minimum MAX AB blowout speed	=	103 KIAS

If an AB blowout occurs before reaching minimum AB blowout speed, takeoff cannot be continued.

TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES

Roll trim should be set prior to takeoff with asymmetric stores to prevent wing drop. A roll trim input will cause one TEF to be less than full down; therefore, takeoff speed should be increased by 2 knots for each dot of roll trim applied in order to compensate for reduced lift. Takeoff distance increases proportionately to the speed increase. The roll trim required for various combinations of takeoff speed and store asymmetry is shown in figure C2-10.

NOTE

It is possible to exceed the lateral trim authority of the aircraft for an onspeed takeoff with a net asymmetric (rolling) moment less than aircraft takeoff limits.

REFER TO FIGURE C2-10.

Enter chart with corrected takeoff speed (A), proceed upward to asymmetric store weight (B) and horizontally to the store station baseline, and follow the guidelines to the store station at which the asymmetric load is present (C). From (C), proceed horizontally to read dots of roll trim required at (D).

SAMPLE PROBLEM.

A.	Corrected takeoff speed	=	151 KIAS
B.	Asymmetric store weight	=	800 pounds
C.	Asymmetric store station	=	3
D.	Dots of roll trim required	=	Approximately 2, right wing down

TAKEOFF AND LANDING CROSSWIND LIMITS

Figure C2-11 is to be used to convert reported wind direction and windspeed into headwind and crosswind components. Crosswind component limits for takeoff and landing are also shown.

REFER TO FIGURE C2-11.

Enter chart at the point where reported windspeed intersects wind direction relative to runway (A). Pro ceed down to read crosswind (B) and proceed to the left to read headwind (C).

SAMPLE PROBLEM.

A.	Windspeed	=	15 knots
•	Wind direction relative to runway	=	48 degrees
B.	Crosswind	=	11.1 knots
C.	Headwind	=	10 knots

BRAKE ENERGY LIMITS – MAXIMUM EFFORT BRAKING

Heat energy is absorbed in the brake discs when wheel brakes are used. Brake disc temperature increases in direct proportion to the amount of energy absorbed. For normal aircraft operations, almost all the heat energy absorbed during brake usage is temporarily stored in the brake discs and is dissipated during a subsequent cooling period. As an example, the energy absorbed during an approximate 15-second brake application as part of a normal landing is not completely dissipated for more than 1 hour after the aircraft is stopped. The heat energy transferred to the tire/wheel assembly and the brake piston housing causes the temperature of those units to increase to a peak temperature 10-20 minutes after brake usage. Greater amounts of brake energy

absorption cause higher disc temperatures and produce faster heat transfer to the tire/wheel assembly and brake piston housing. Since the strength of the brake discs, tire/wheel assembly, and brake piston housing decreases as the temperature increases, the severity of brake usage that can be safely withstood is dependent on brake component temperatures.

REFER TO FIGURES C2-12 AND C2-13.

Enter chart with GW (A), follow a vertical line downward to brake application speed (B), and proceed horizontally to point (C) at the right of weight/brake application speed plot. From point (C), follow guidelines upward to the right.

To compute the stopping energy, enter chart with runway temperature (D), follow a horizontal line to the left to pressure altitude (E), and then project a line vertically downward to intersection (F) with the line previously constructed from point (C). Proceed horizontally from intersection point (F) to the right to read brake stopping energy (G).

To compute taxi energy component, continue downward projection of vertical line for GW (A) until it intersects taxi speed (H); then proceed horizontally to the right until it intersects the taxi distance (I); then proceed vertically upward to read taxi energy (J).

The cumulative total energy is determined by continuing the projections of the lines for stopping and taxi energy until they intersect (K).

Quick turnaround takeoff capability can be determined by using the SAFE TIRE BEAD TEMPERATURE chart (figure C2-13). Enter with the cumulative total energy absorption (K). Proceed horizontally to right to intersect vertical line representing ambient temperature. This intersection (L) shows no cooling period required.

SAMPLE PROBLEM.

Condition:	Full stop landing followed by 5000 feet taxi
Find:	Total stopping energy
Determine:	Quick turnaround capability

A.	GW	=	23,000 pounds
B.	Brake application speed	=	100 KIAS
D.	Runway temperature	=	80°F
E.	Pressure altitude	=	1000 feet
G.	Stopping energy	=	4.9 million foot-pounds
H.	Taxi speed	=	20 knots groundspeed
I.	Taxi distance	=	5000 feet
J.	Taxi energy	=	0.85 million foot-pounds
K.	Total stopping energy (G + J)	=	5.75 million foot-pounds
L.	Intersection	=	Quick turnaround possible

ABORTED TAKEOFF MAXIMUM BRAKE APPLICATION SPEED

Figure C2-12 can also be used for finding the maximum brake application speed for aborted takeoff considering taxi energy absorbed prior to starting takeoff run. This is accomplished by computing the taxi energy and projecting this value vertically upward to the intersection of the danger zone upper limit (23.5 million foot-pounds per brake). From this intersection, proceed horizontally to the left to the remaining brake energy capacity available for stopping during aborted takeoff. The maximum brake application speed can then be found for the prevailing conditions of GW, pressure altitude, and temperature. If brakes must be applied prior to complete thrust decay to idle (approximately 4 seconds), maximum brake application speed must be reduced by 20 KIAS.

Takeoff Factor

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

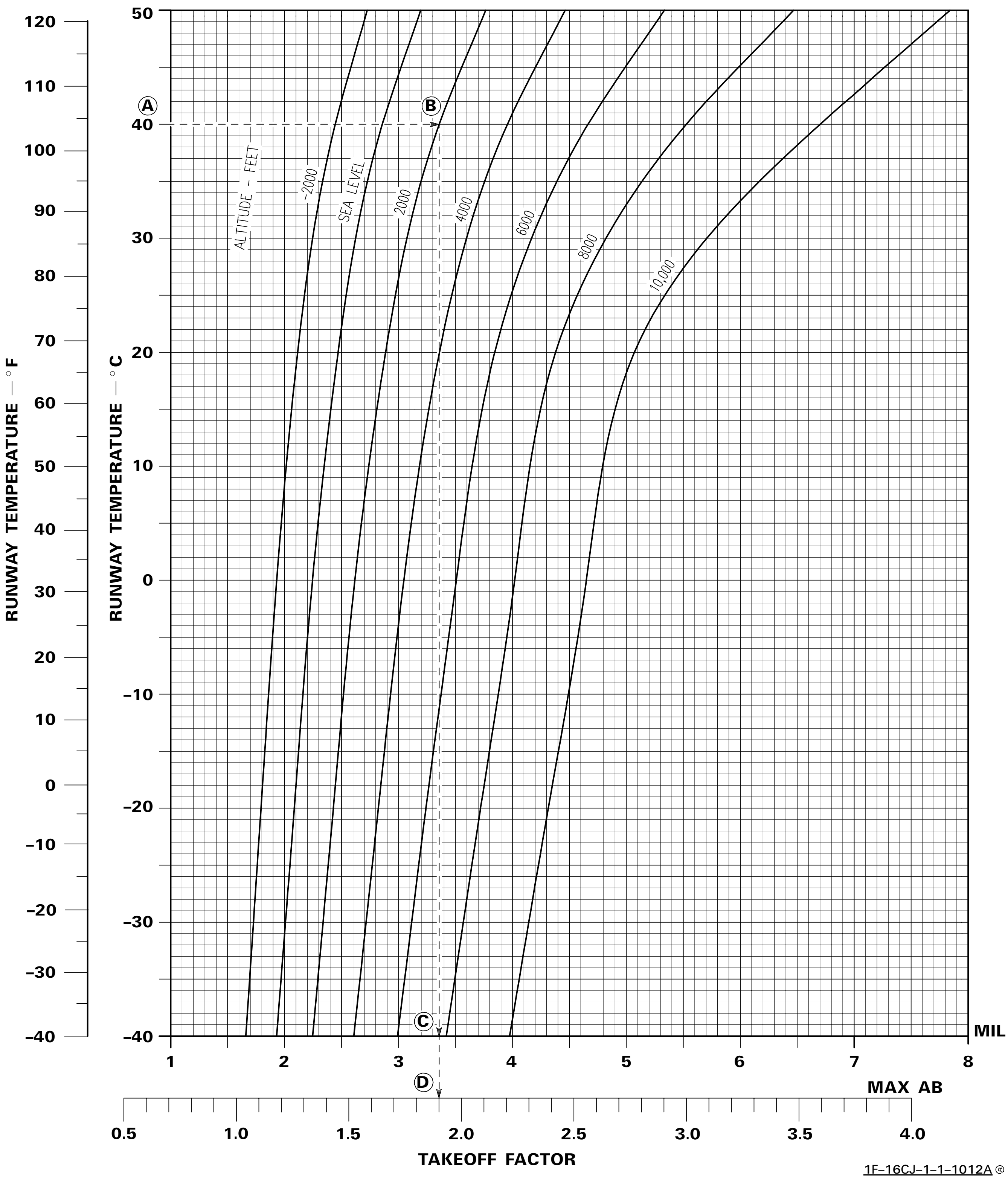


Figure C2-1.

Takeoff Speed

CONFIGURATION:
- ALL DRAG INDEXES
- CG = 35% MAC
- ZERO ROLL TRIM

CONDITIONS:
- ALL ALTITUDES
- ALL TEMPERATURES
- 10 DEGREES PITCH ATTITUDE

NOTES:
- ROTATE AT 10 KNOTS LESS THAN COMPUTED TAKEOFF SPEED FOR NON–AB.
- ROTATE AT 15 KNOTS LESS THAN COMPUTED TAKEOFF SPEED FOR AB.
- INCREASE TAKEOFF SPEED 8 PERCENT FOR TAKEOFF AT 8 DEGREES PITCH ATTITUDE.
- INCREASE TAKEOFF SPEED 0.8 KNOT FOR EACH 1% FORWARD OF 35% MAC.
- DECREASE TAKEOFF SPEED 0.8 KNOT FOR EACH 1% AFT OF 35% MAC.
- FOR TAKEOFF SPEED CORRECTION WITH ROLL TRIM OTHER THAN ZERO, REFER TO TAKEOFF ROLL TRIM WITH ASYMMETRIC STORES CHART (FIGURE C2–10).

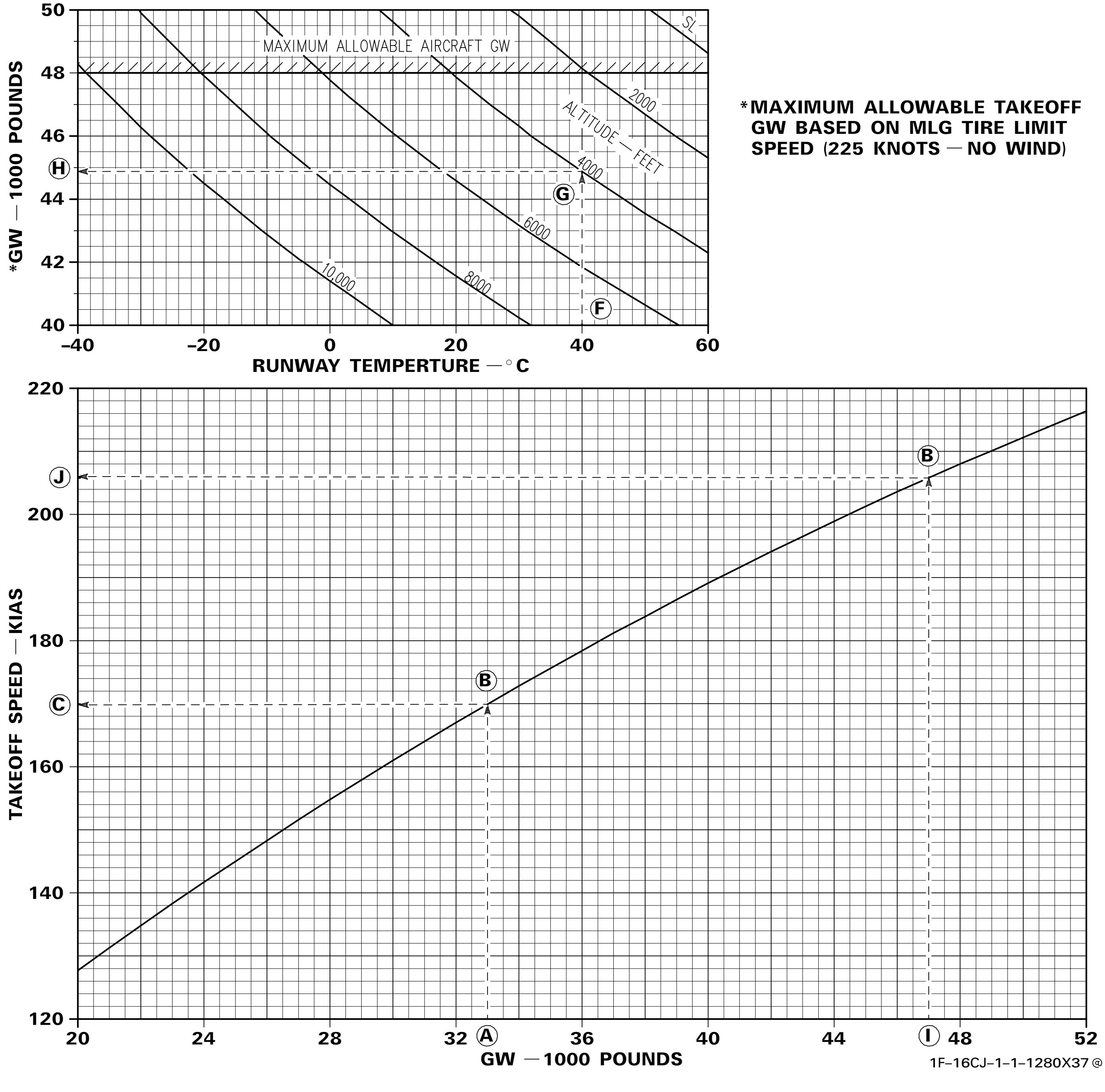


Figure C2-2.

Takeoff Distance

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100–PW–229/CFT**

- **LIFT–OFF AT TAKEOFF SPEED**
- **10 DEGREES PITCH ATTITUDE**

NOTE: 8 DEGREES PITCH ATTITUDE INCREASES TAKEOFF DISTANCE 18 PERCENT.

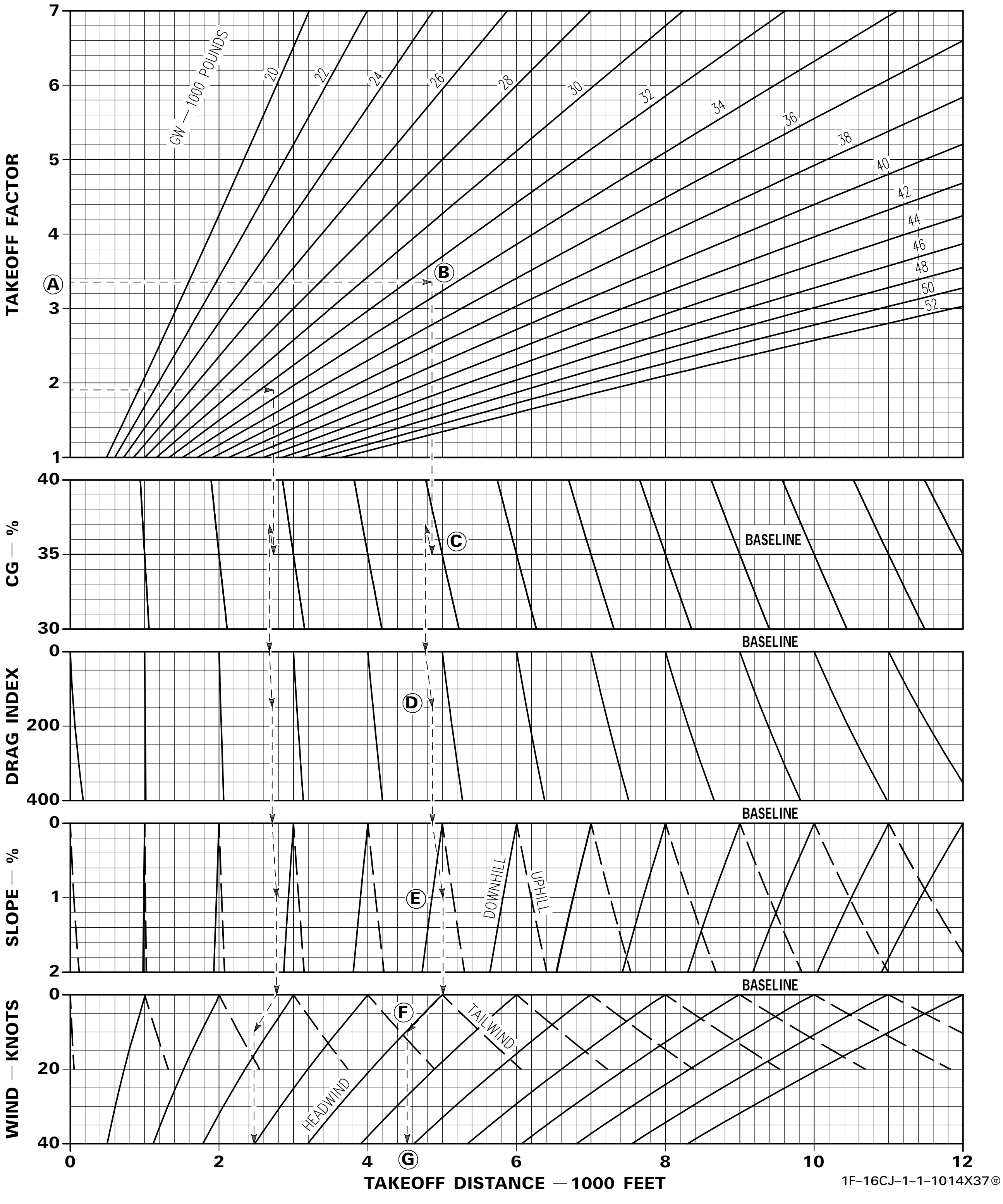


Figure C2-3.

Acceleration Check Speed

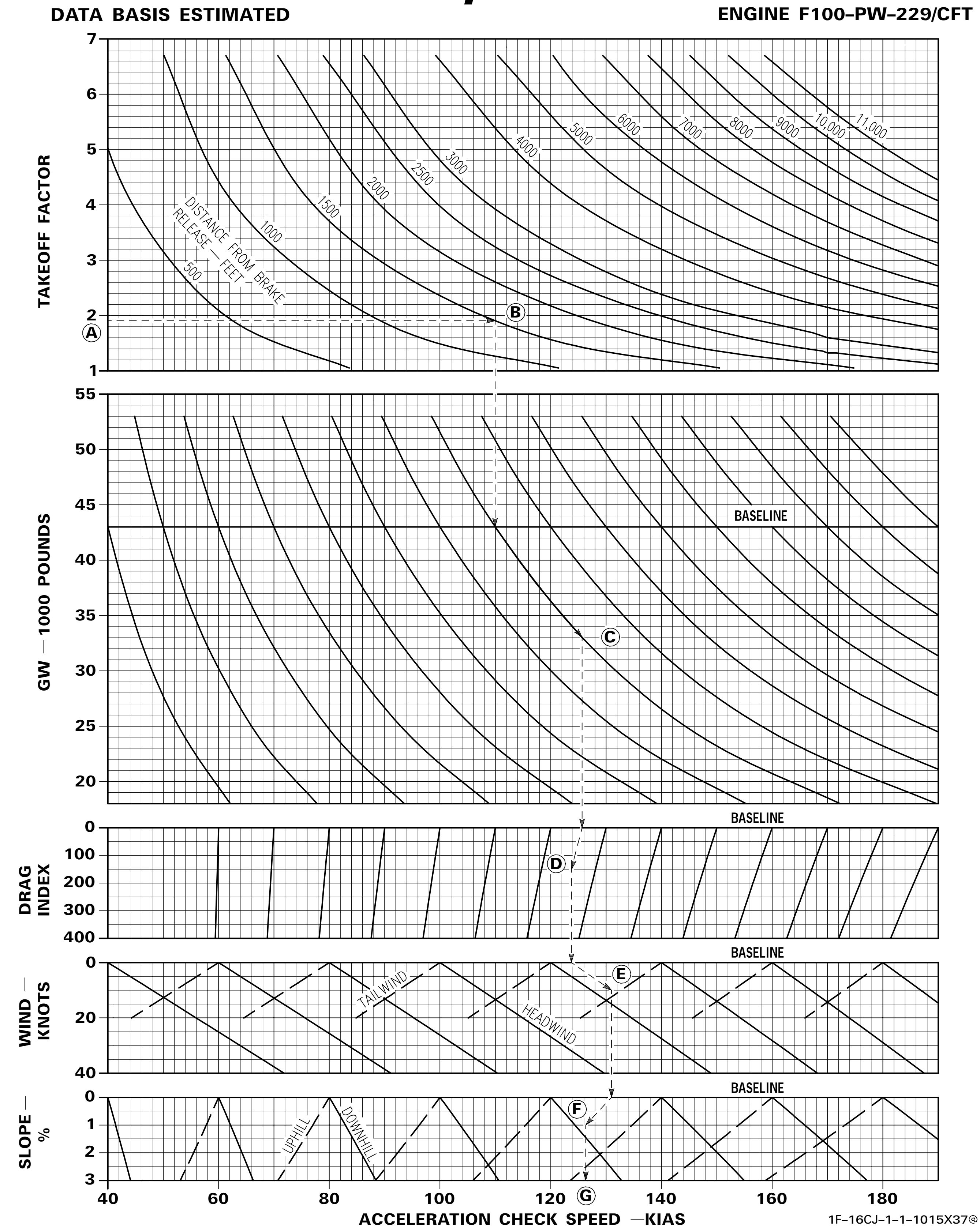


Figure C2-4.

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229/CFT

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES —OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE REFUSAL SPEED BY 4 KIAS FOR ALL GW'S.

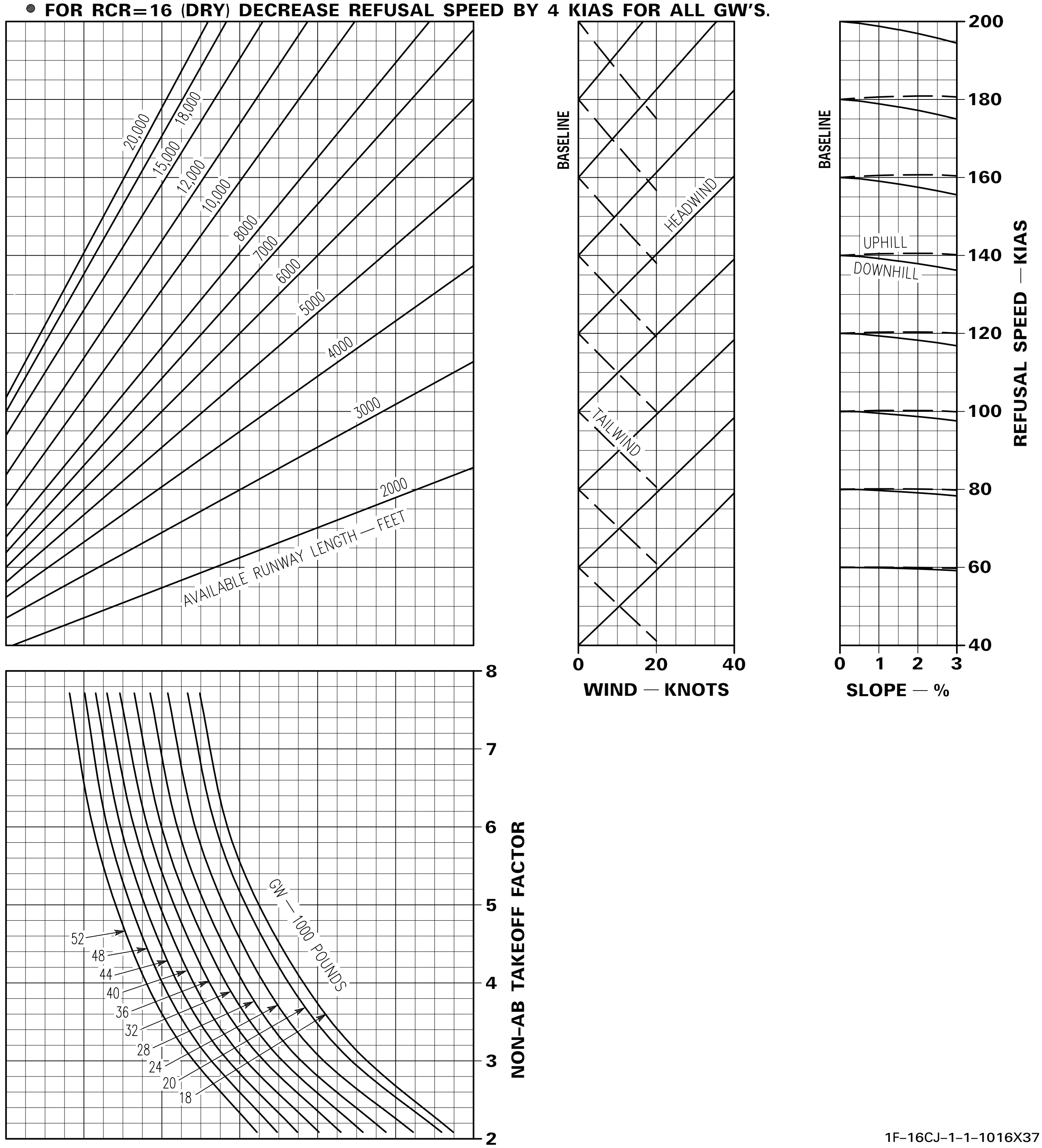


Figure C2-5. (Sheet 1)

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229/CFT

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES —OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE REFUSAL SPEED BY 9 KIAS FOR ALL GW'S.

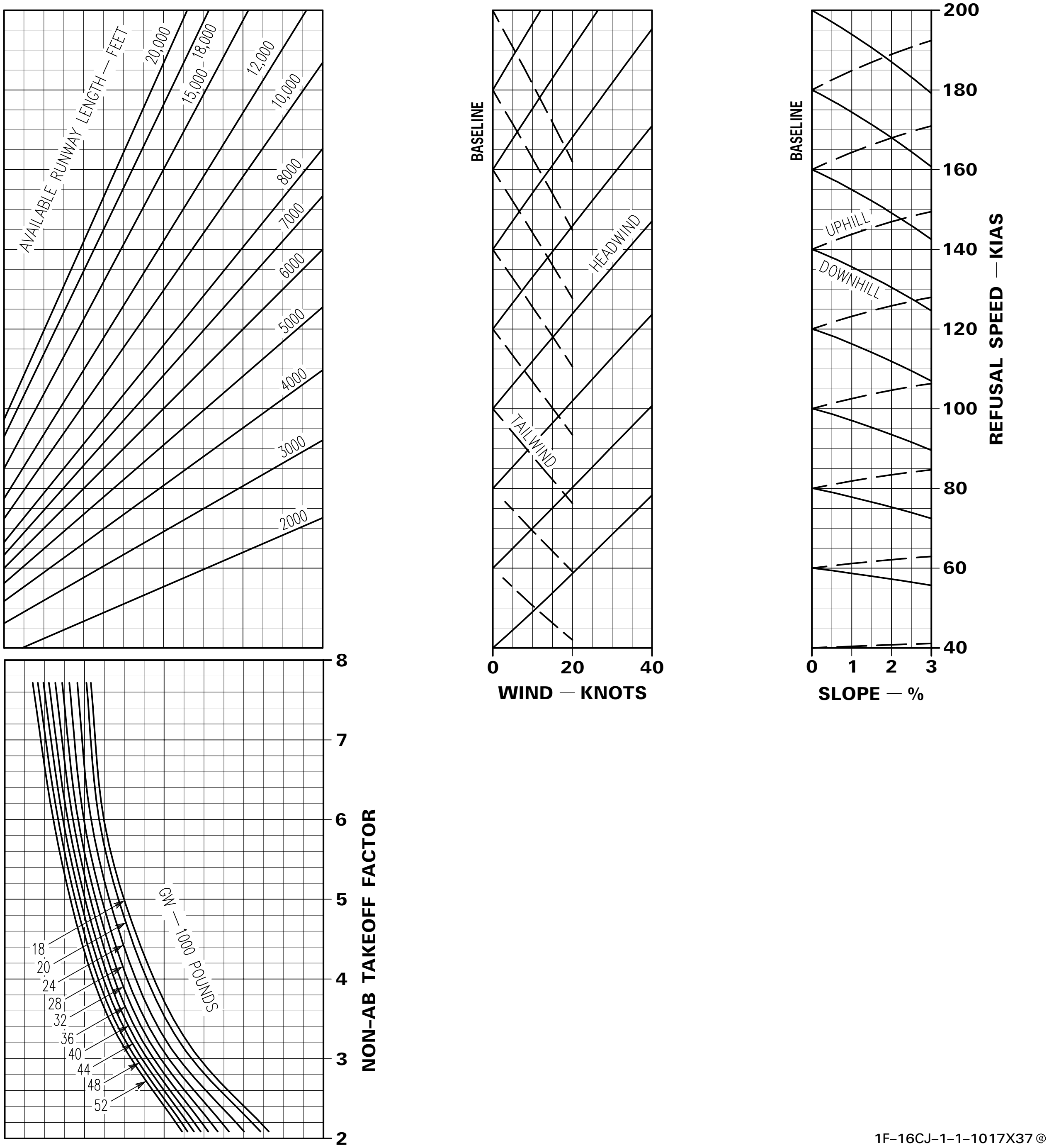


Figure C2-5. (Sheet 2)

Refusal Speed (Non–AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES —OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

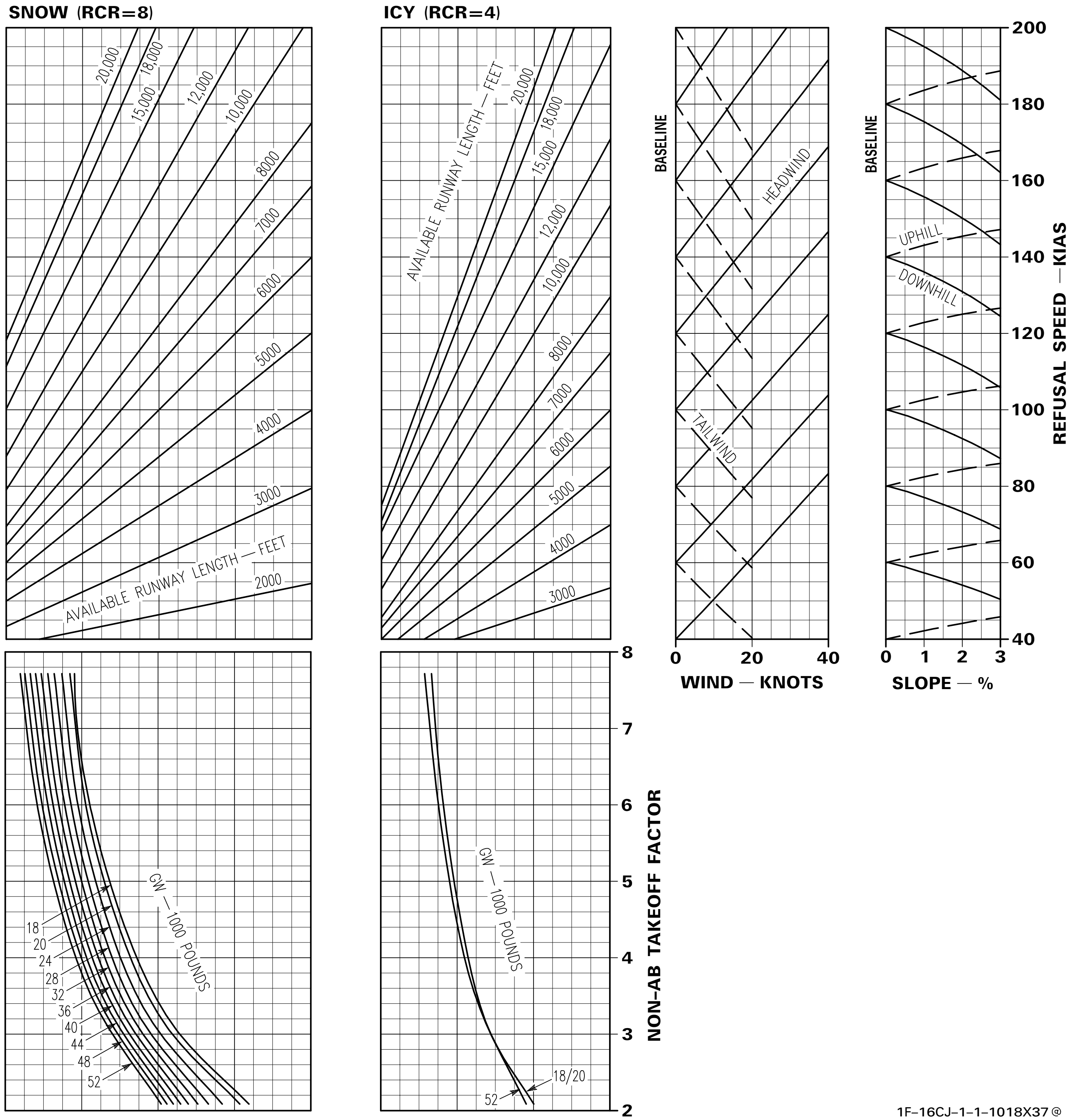


Figure C2-5. (Sheet 3)

Refusal Speed (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES —OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE REFUSAL SPEED BY 5 KIAS FOR ALL GW'S.

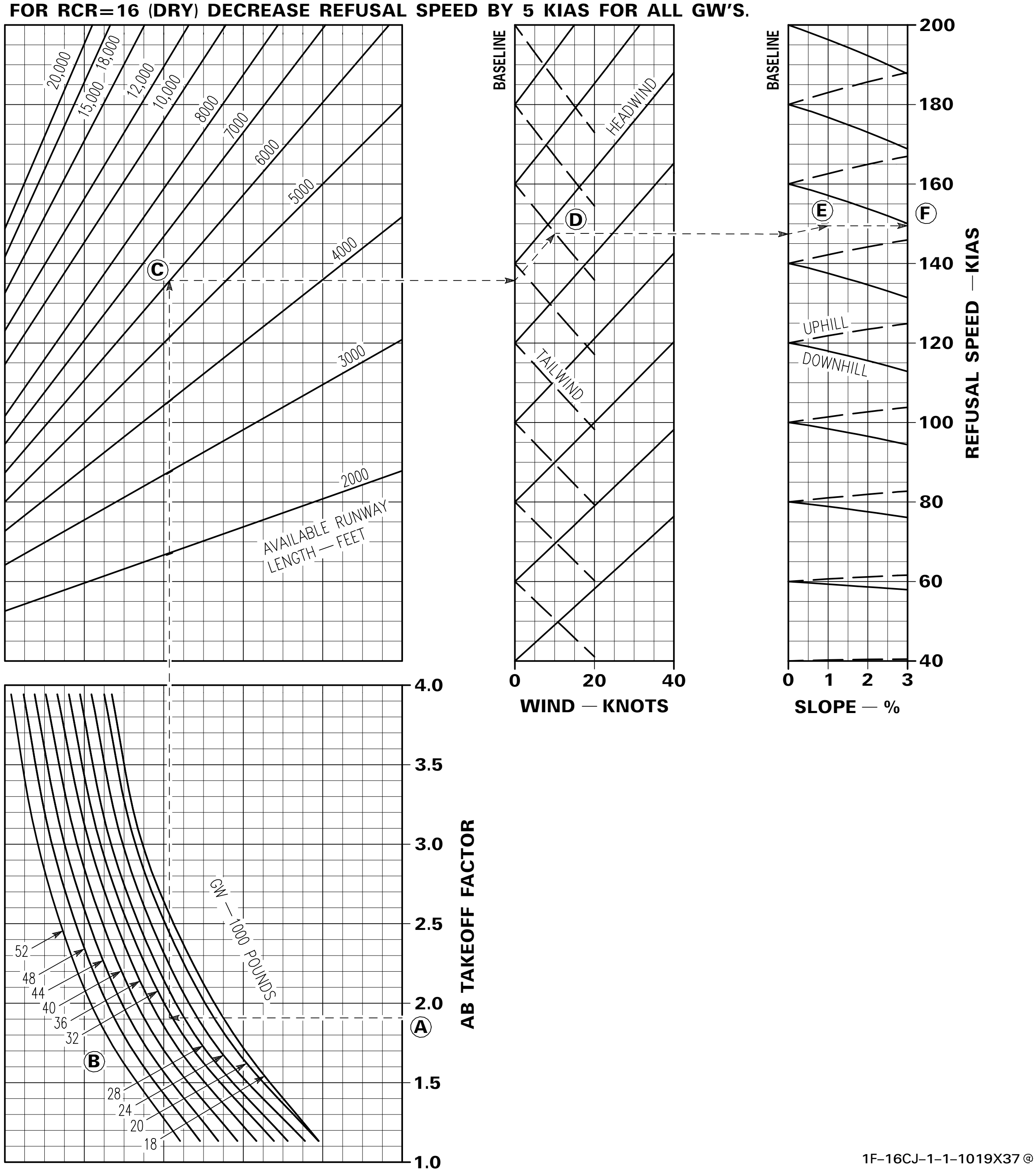


Figure C2-6. (Sheet 1)

Refusal Speed (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES —OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE REFUSAL SPEED BY 10 KIAS FOR ALL GW'S.

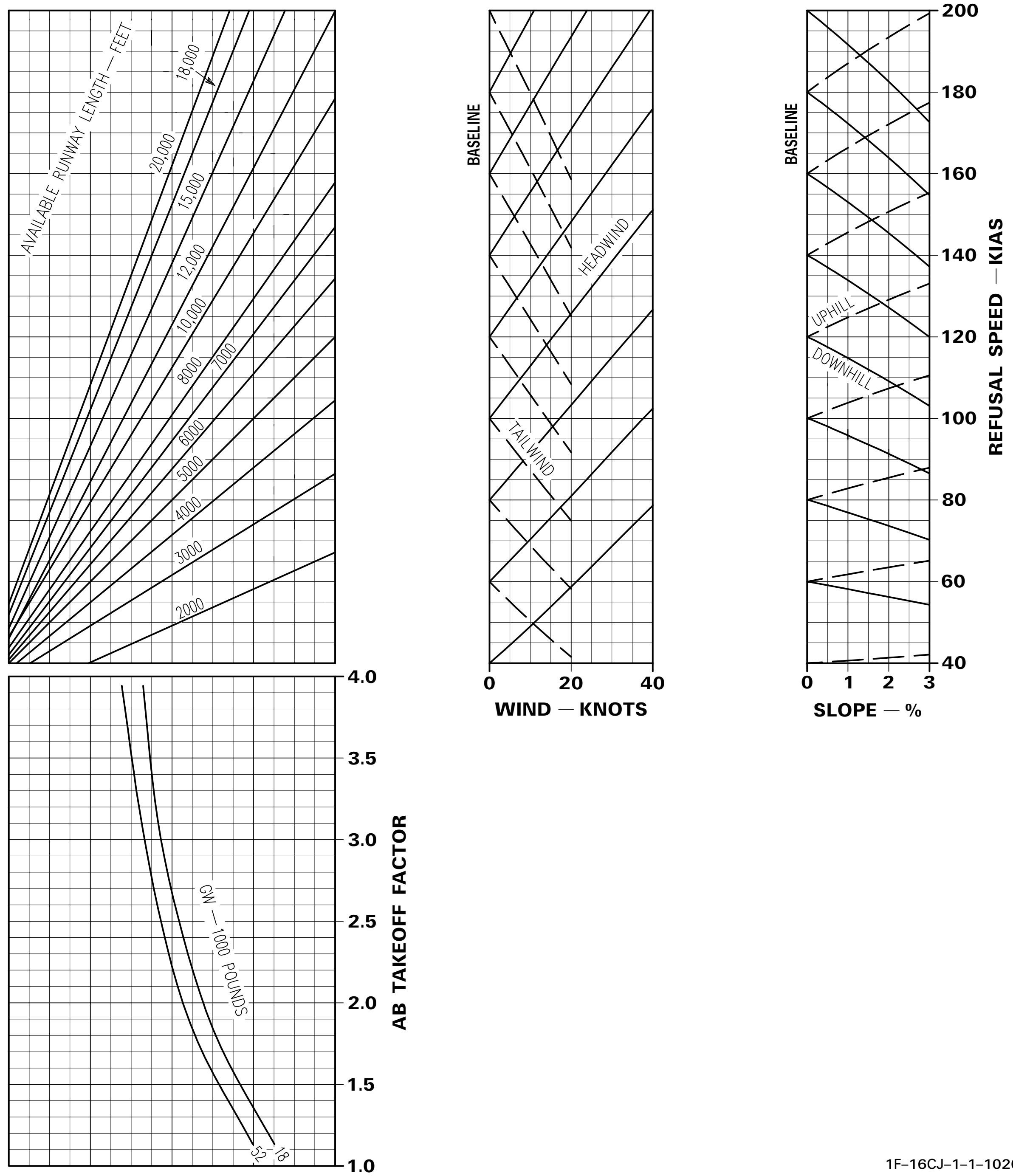


Figure C2-6. (Sheet 2)

Refusal Speed (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES —OPEN

CONDITIONS:
- IDLE SELECTED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

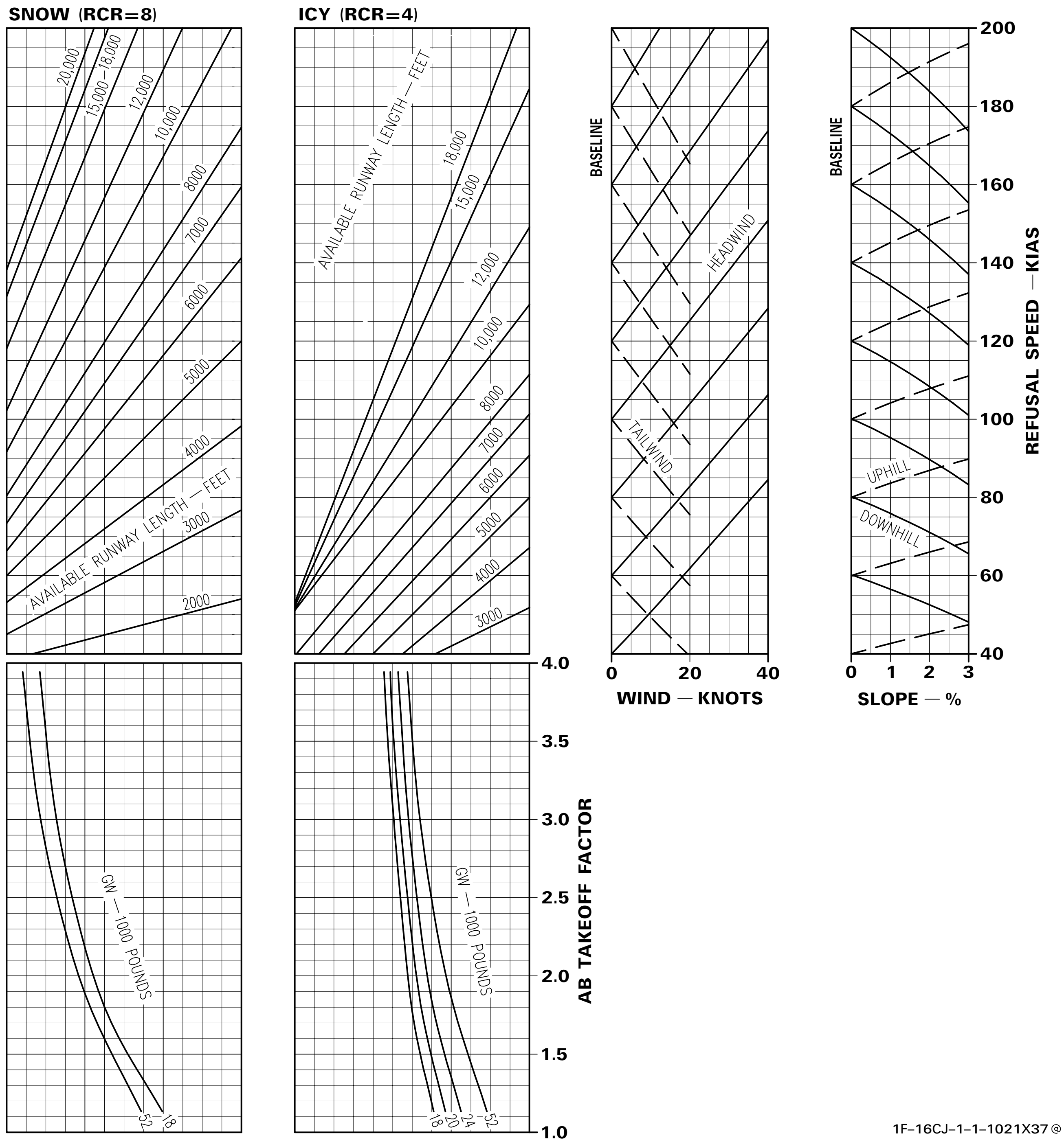


Figure C2-6. (Sheet 3)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE DRY RUNWAY REFUSAL SPEED BY 2.5 KIAS FOR ALL GW'S.

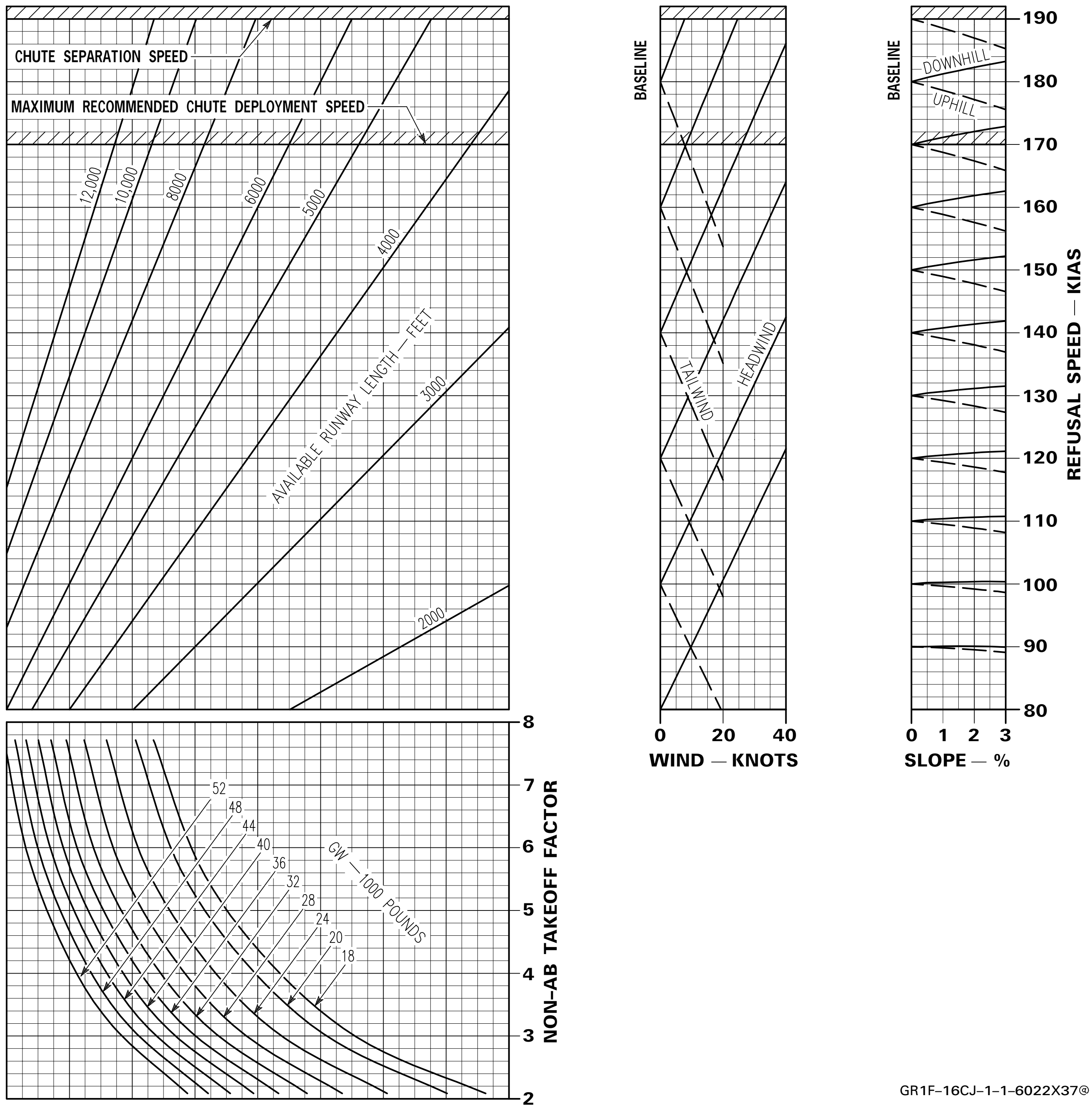


Figure C2-7. (Sheet 1)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2-12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE WET RUNWAY REFUSAL SPEED BY 6 KIAS FOR ALL GW'S.

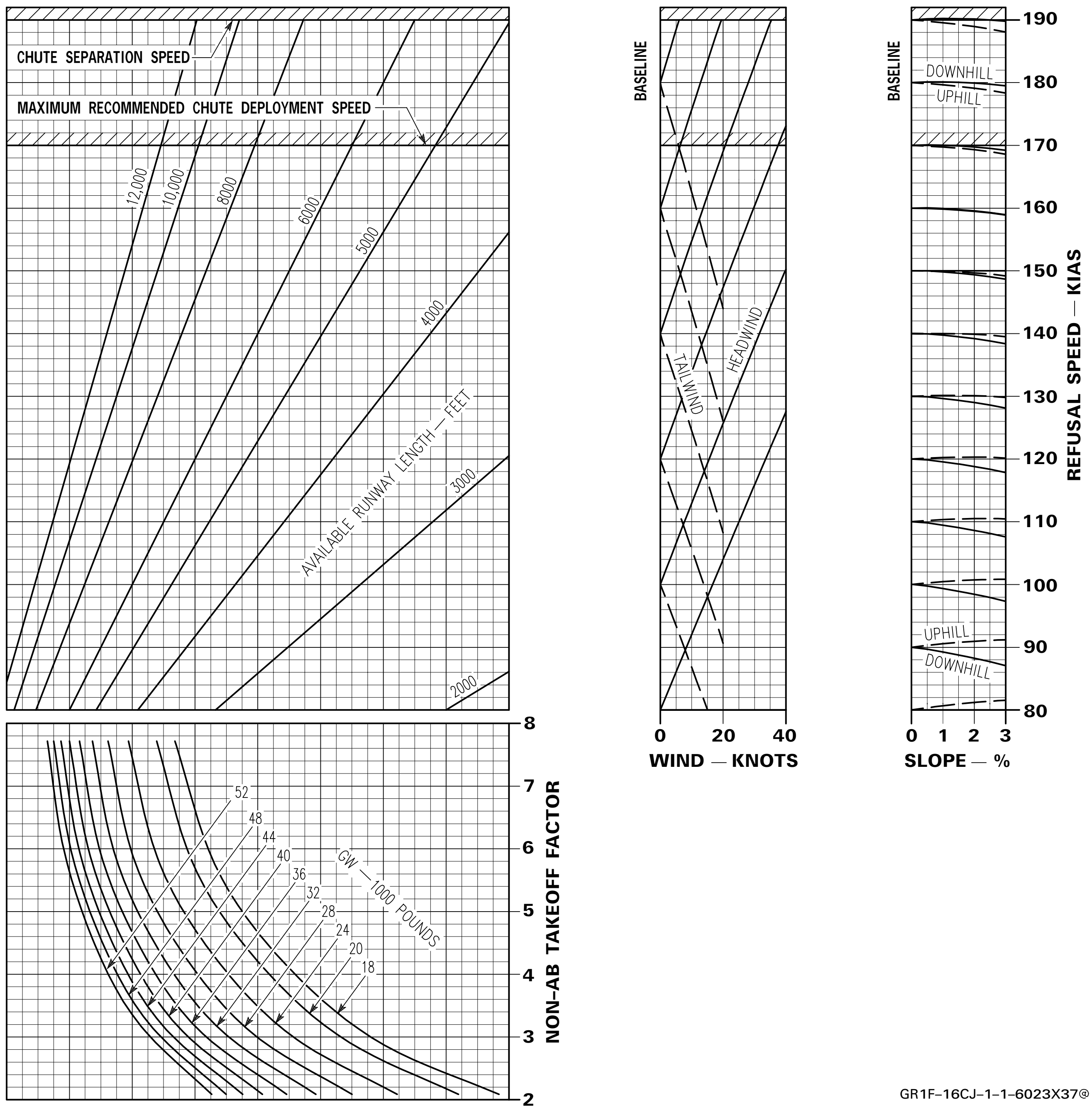


Figure C2-7. (Sheet 2)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229/CFT

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

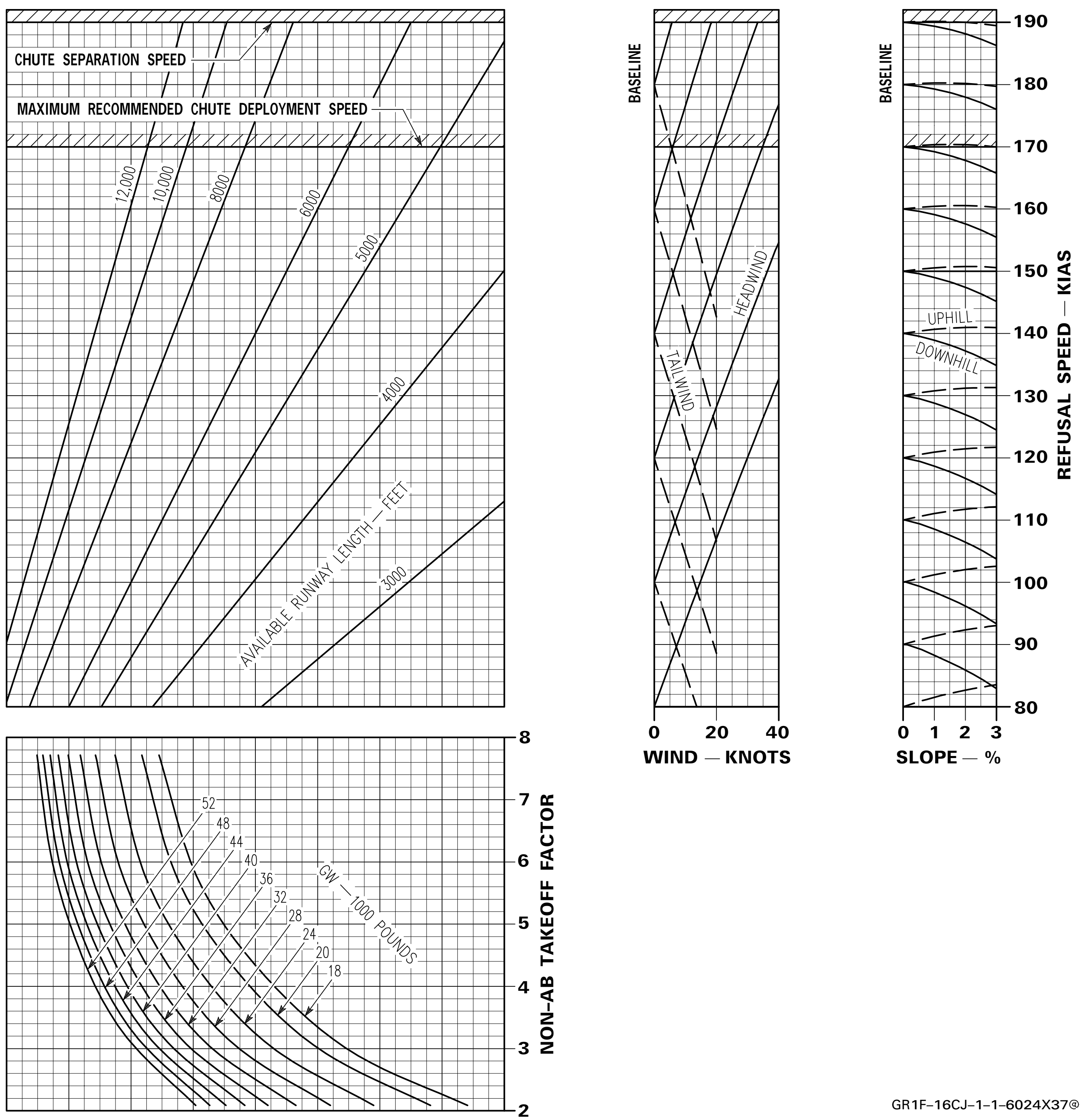


Figure C2-7. (Sheet 3)

Refusal Speed With Drag Chute (Non–AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

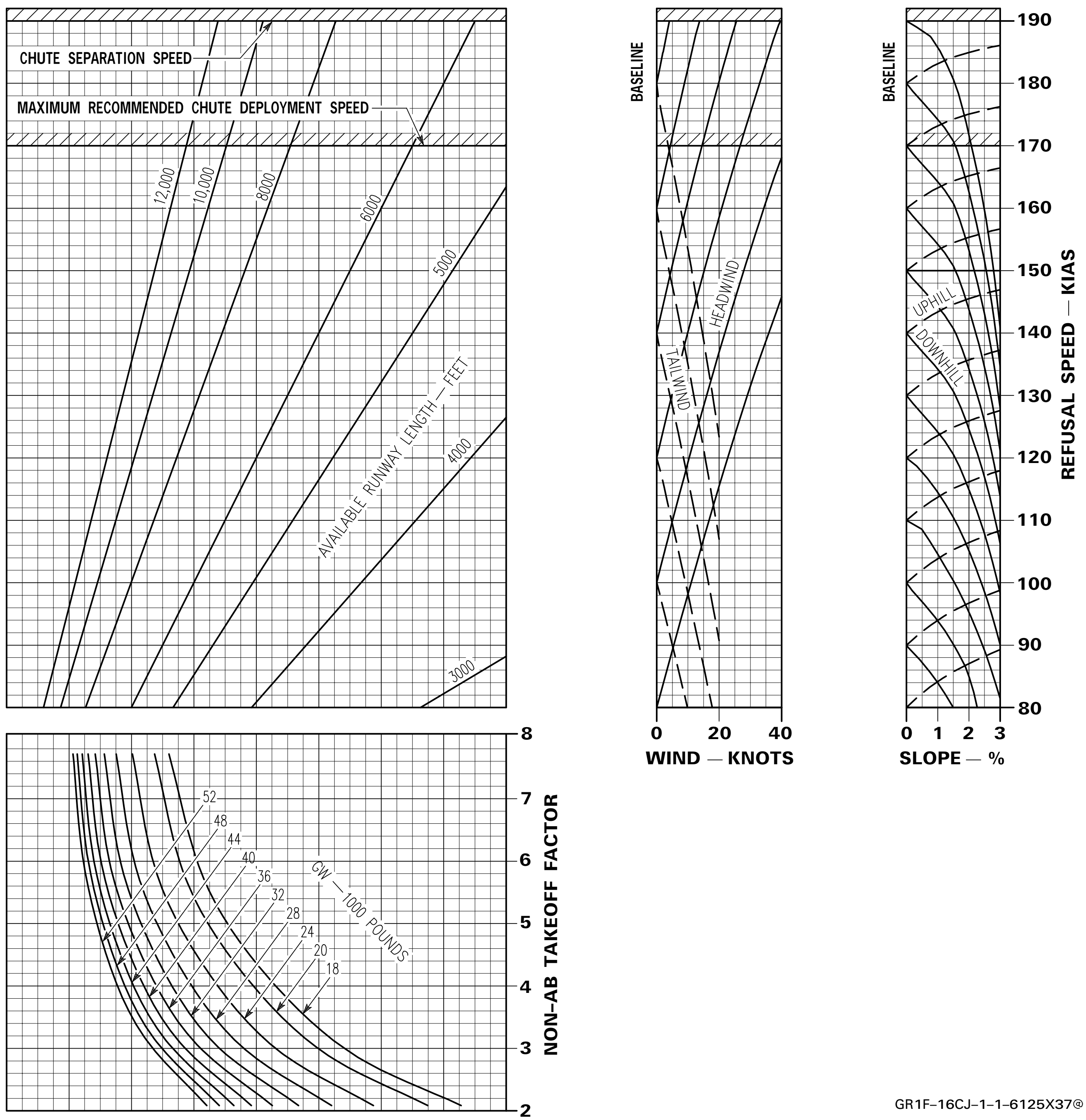


Figure C2-7. (Sheet 4)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- DRY CONCRETE (RCR=23)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=16 (DRY) DECREASE DRY RUNWAY REFUSAL SPEED BY 3.5 KIAS FOR ALL GW'S.

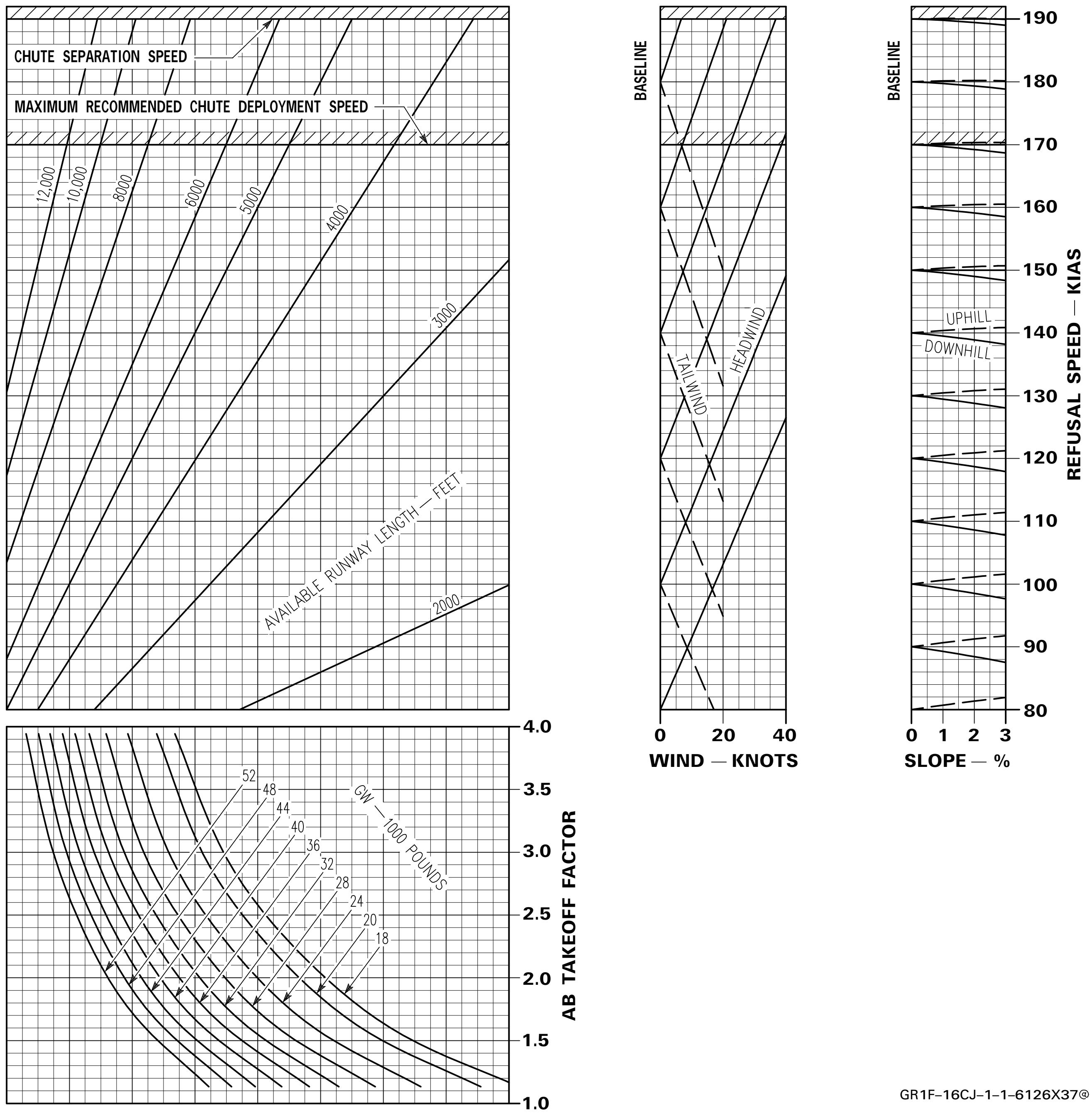


Figure C2-8. (Sheet 1)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229/CFT

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- WET CONCRETE (RCR=18)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2-12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.
- FOR RCR=12 (WET) DECREASE WET RUNWAY REFUSAL SPEED BY 8.5 KIAS FOR ALL GW'S.

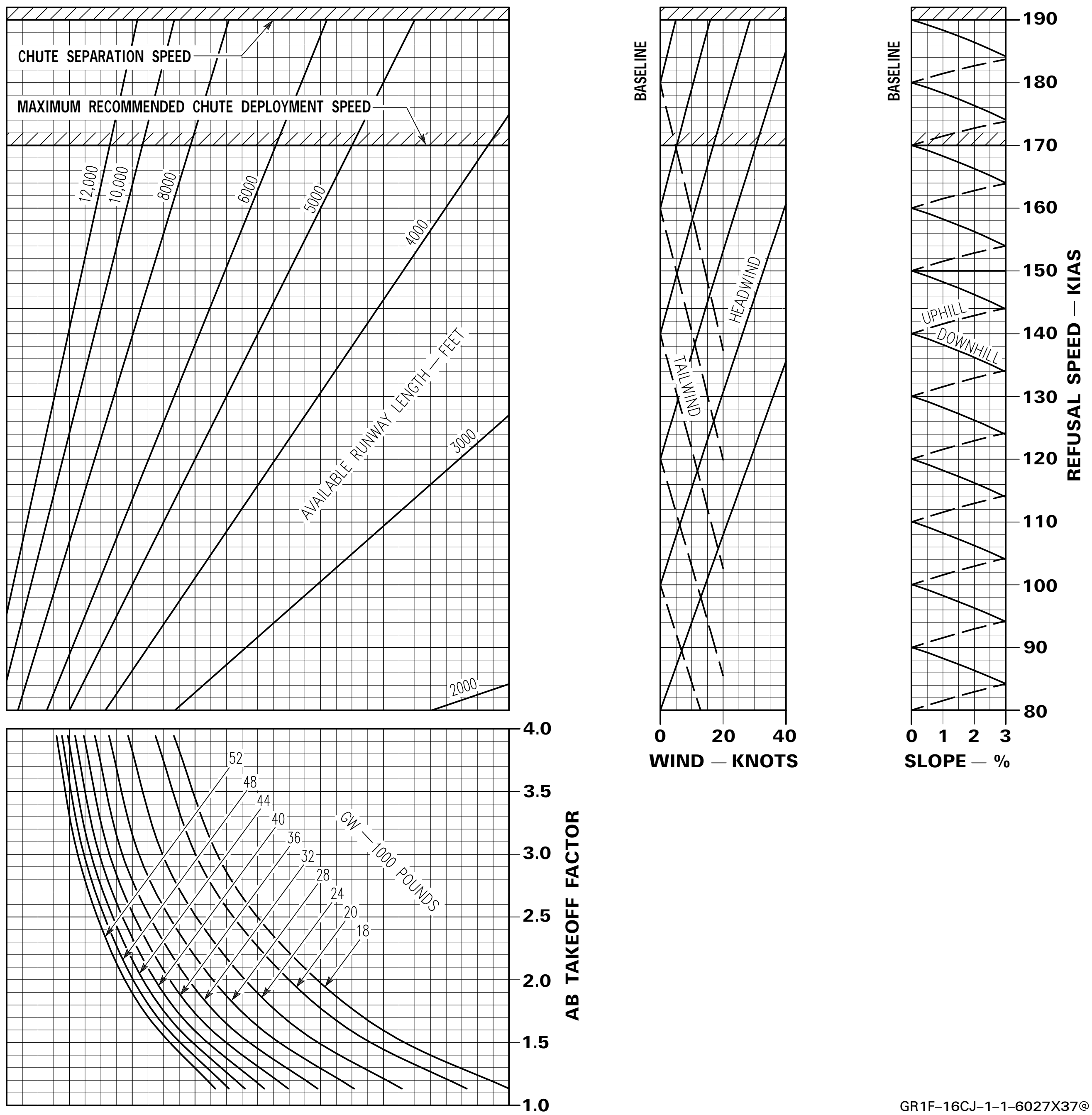


Figure C2-8. (Sheet 2)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:
- IDLE SELECTED AND DRAG CHUTE DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
- SNOW (RCR=8)

NOTES:

REFUSAL SPEED BASED ON:
- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

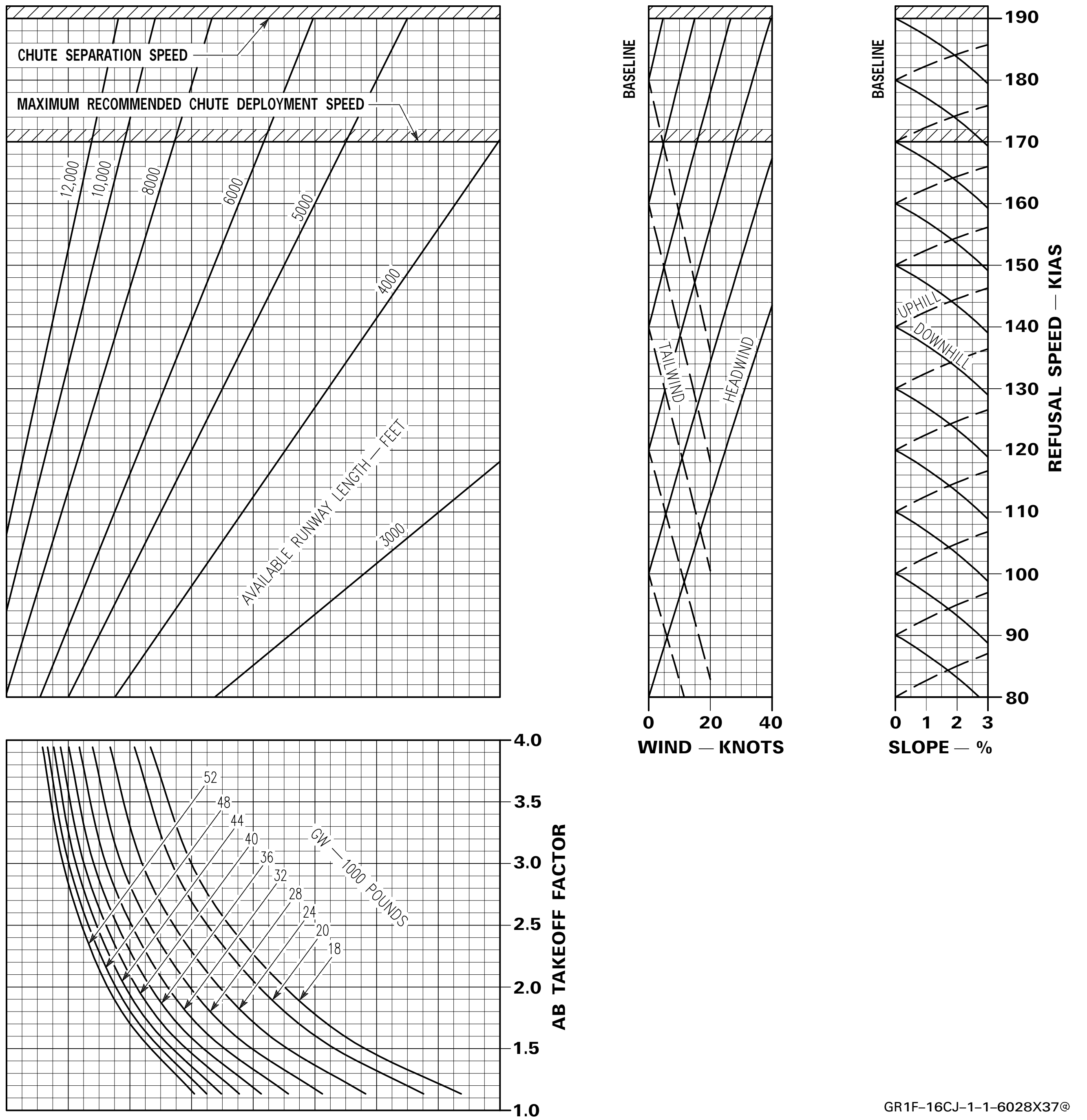


Figure C2-8. (Sheet 3)

Refusal Speed With Drag Chute (AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229/CFT

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED

CONDITIONS:

- IDLE SELECTED AND DRAG CHUTE
- DEPLOYED AT REFUSAL SPEED
- MAX EFFORT BRAKING
  ICY (RCR=4)

NOTES:

REFUSAL SPEED BASED ON:

- ZERO TAXI ENERGY.
- NO BRAKING ABOVE MAX BRAKE APPLICATION SPEED (REFER TO FIGURE C2–12).
- BRAKES APPLIED 3 SECONDS AFTER IDLE SELECTED.

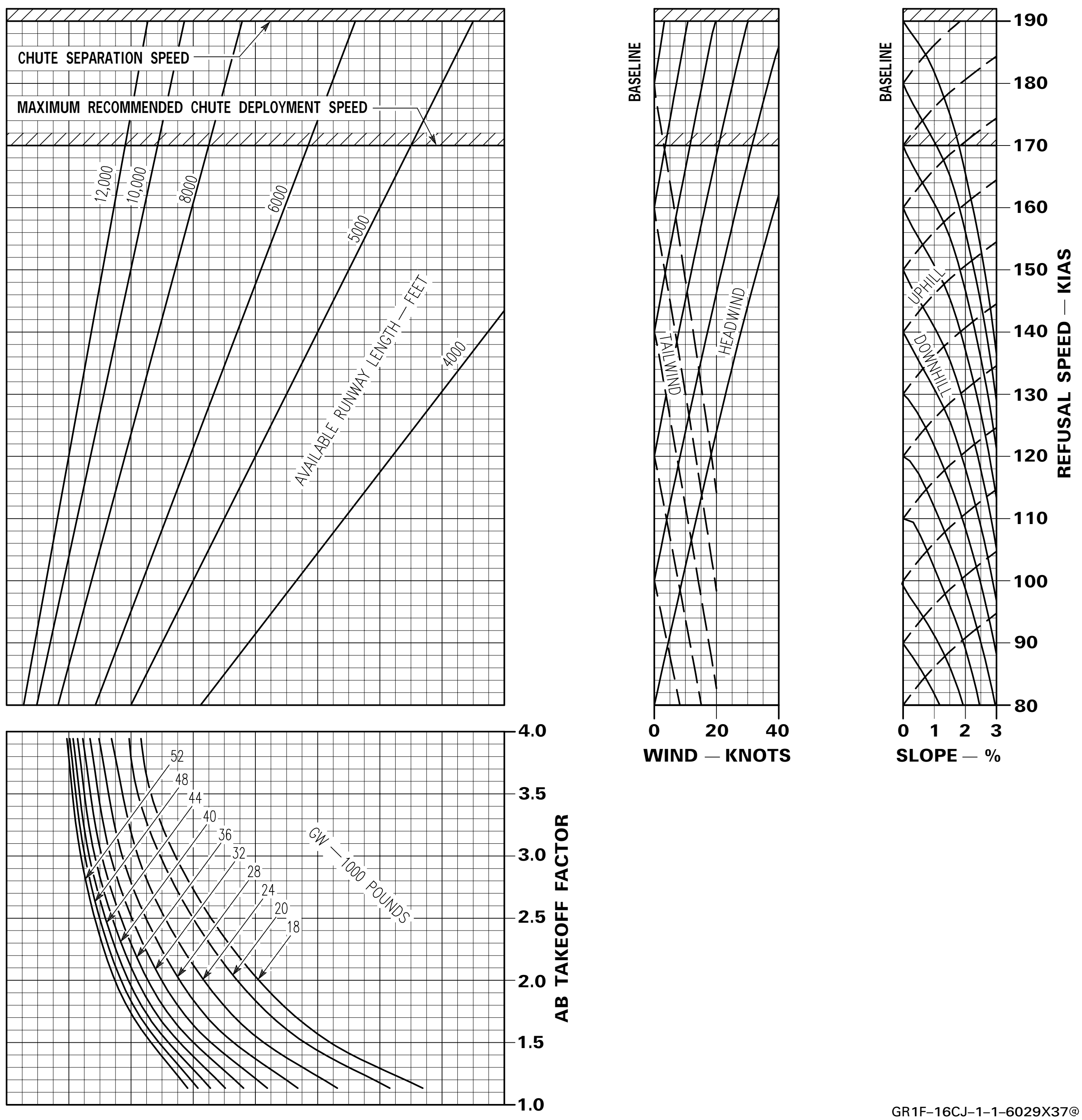


Figure C2-8. (Sheet 4)

Minimum AB Blowout Speed

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

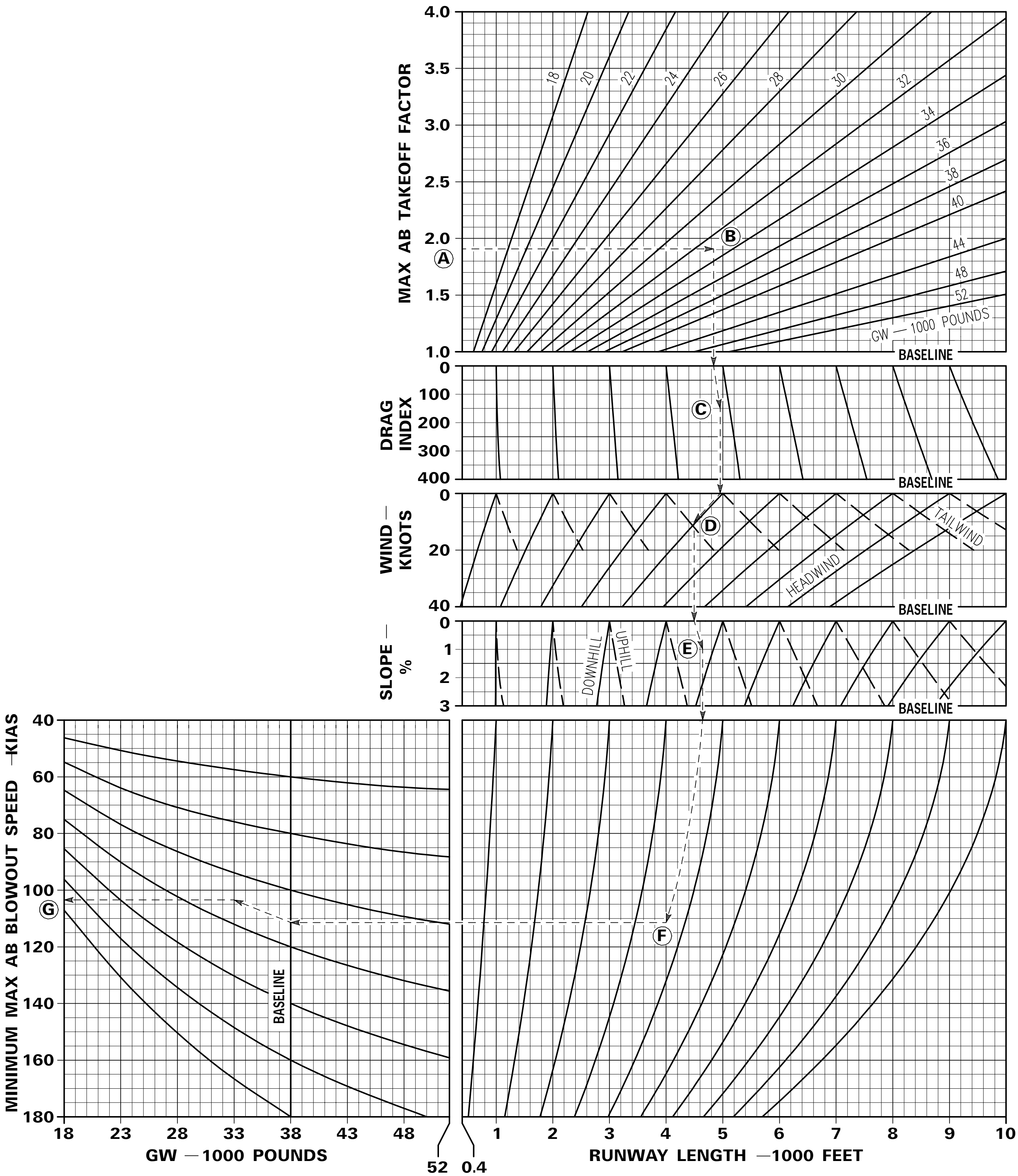


Figure C2-9.

Takeoff Roll Trim With Asymmetric Stores

DATA BASIS ESTIMATED

CONFIGURATION:
- LEF'S SCHEDULED
- TEF'S AT 20 DEGREES

NOTES:
- INCREASE TAKEOFF SPEED 2 KNOTS FOR EACH DOT OF ROLL TRIM APPLIED TO COMPENSATE FOR REDUCED LIFT. TAKEOFF DISTANCE INCREASES PROPORTIONATELY TO THE SPEED INCREASE.
- IT IS POSSIBLE TO EXCEED THE LATERAL TRIM AUTHORITY OF THE AIRCRAFT FOR ONSPEED TAKEOFF WITH A NET ASYMMETRIC (ROLLING) MOMENT LESS THAN AIRCRAFT TAKEOFF LIMITS. REFER TO SECTION V FOR LIMITS.

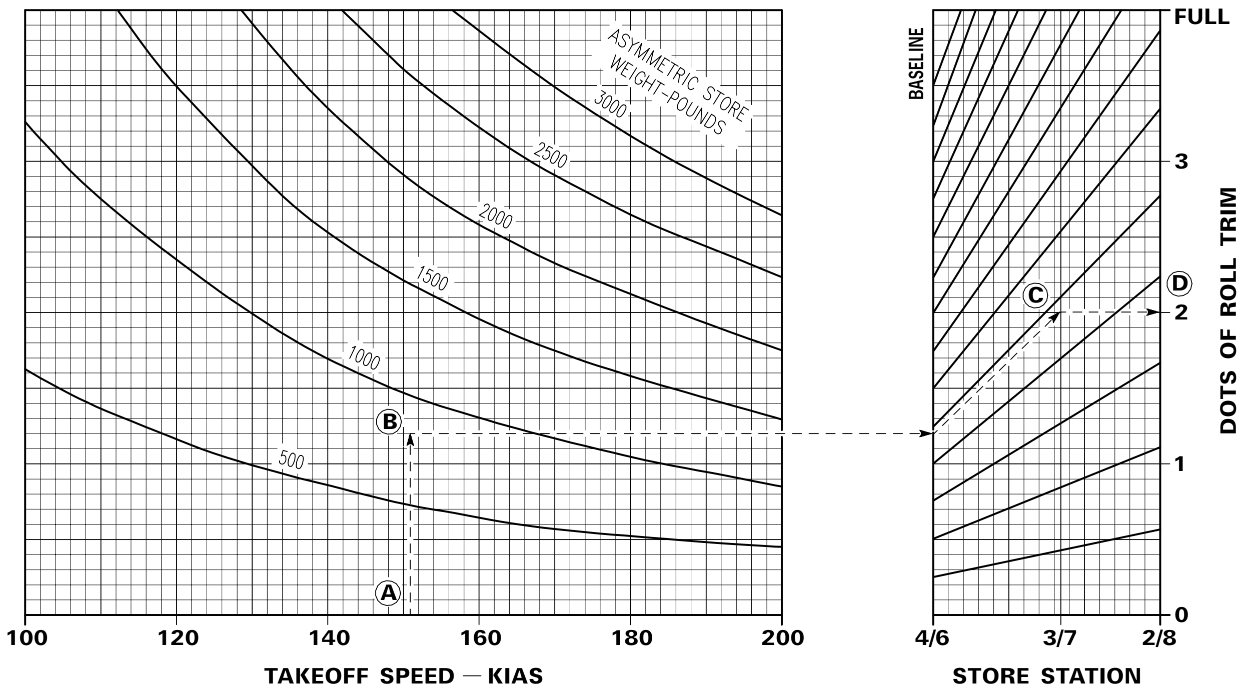
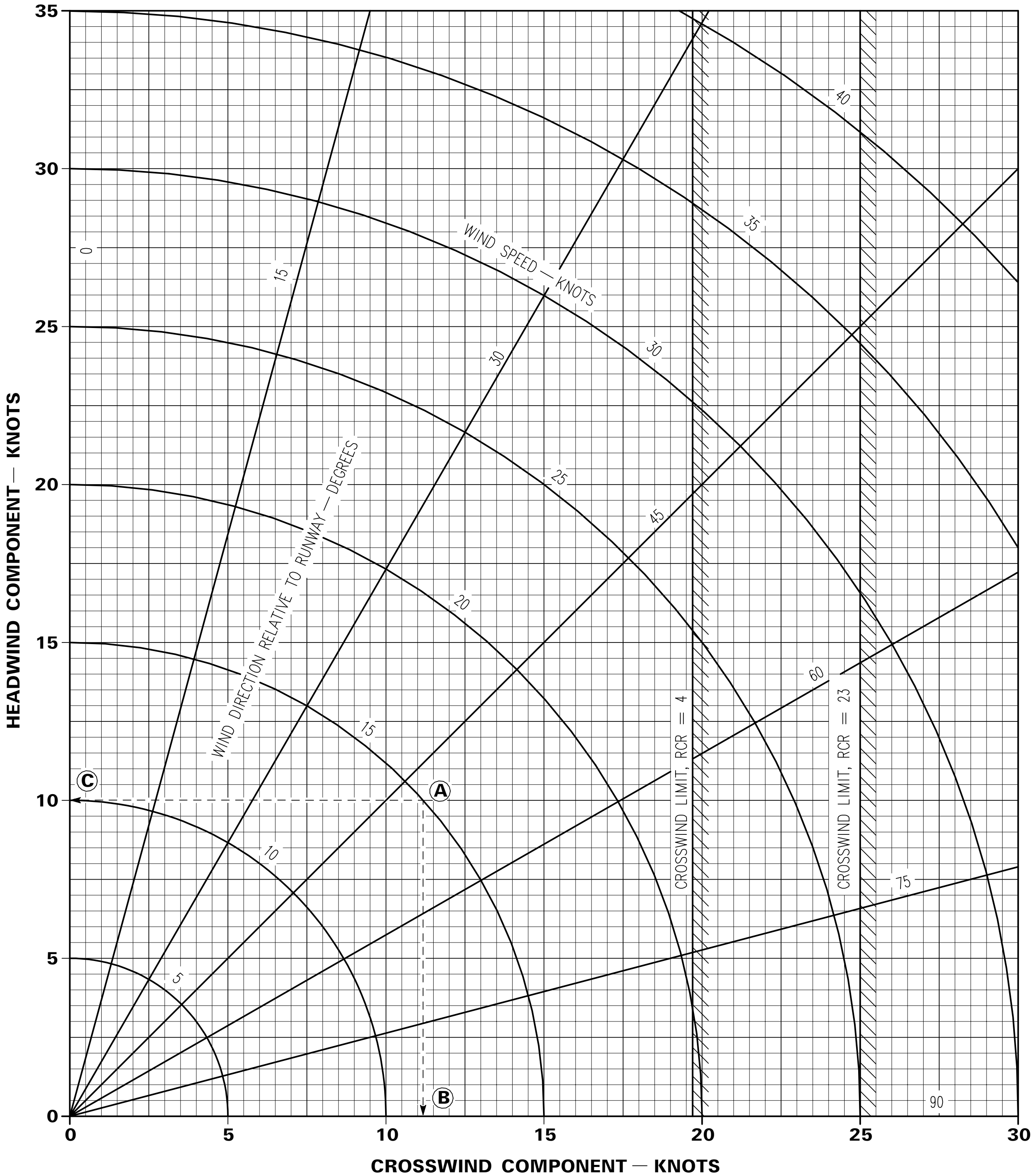


Figure C2-10.

Takeoff and Landing Crosswind Limits

NOTES:

- CROSSWIND LIMITS FOR RCR VALUES 4–23 MAY BE OBTAINED BY INTERPOLATING BETWEEN THE LIMITS SHOWN.
- ENTER CHART WITH STEADY WIND TO DETERMINE HEADWIND COMPONENT AND MAXIMUM GUST VELOCITY TO DETERMINE CROSSWIND COMPONENT.



1F–16X–1–1–0011A @

Figure C2-11.

Brake Energy Limits — Max Effort Braking

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- TEF's DOWN

CONDITIONS:

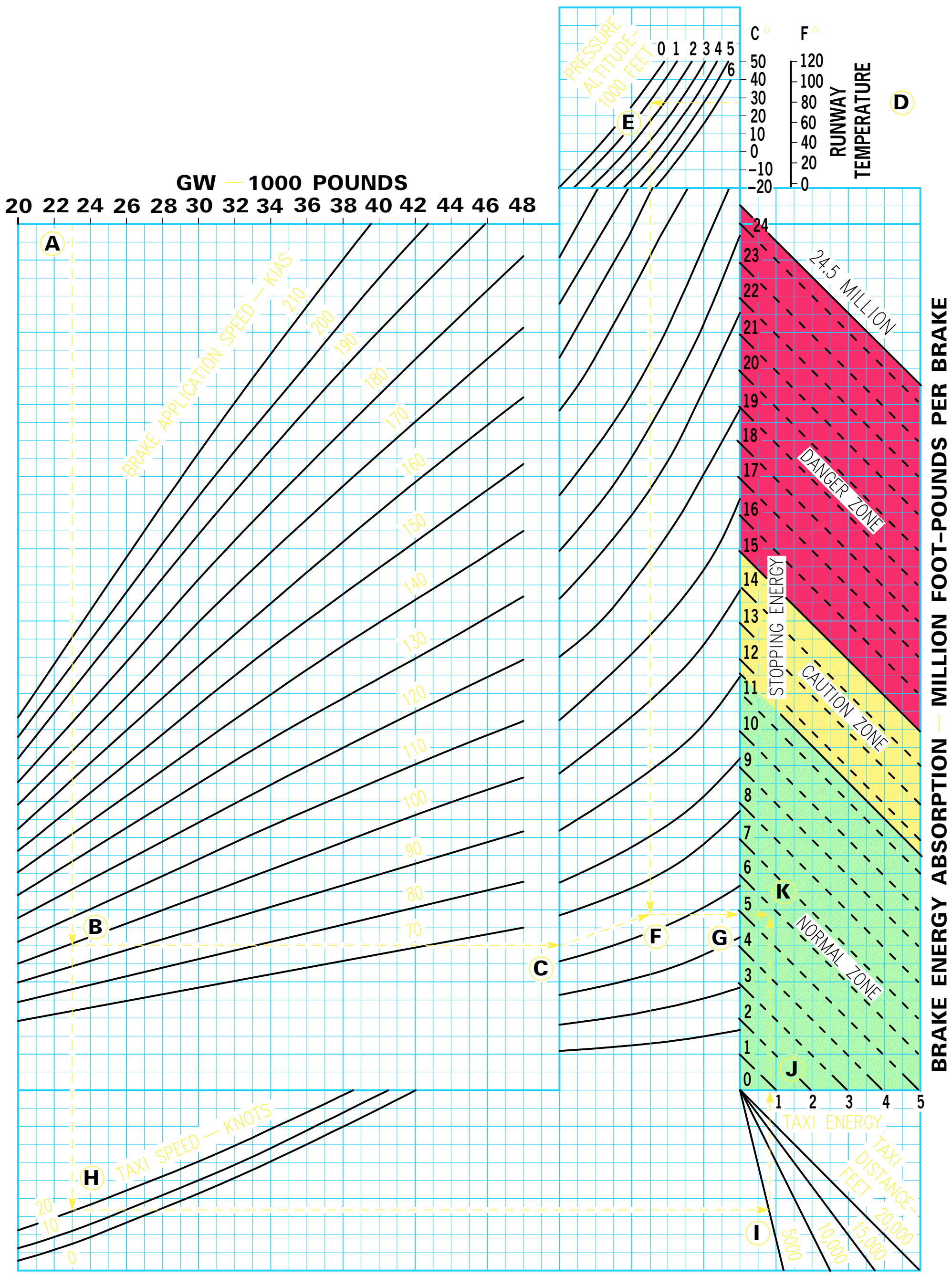
- NORMAL IDLE THRUST

CAUTION

- EXCEEDING 24.5 MILLION FOOT–POUNDS PER BRAKE CUMULATIVE TOTAL ENERGY MAY RESULT IN LOSS OF BRAKING.

NOTES:

- ADD TAILWIND COMPONENT OR SUBTRACT ONE–HALF HEADWIND COMPONENT FROM AIRSPEED WHEN BRAKES ARE APPLIED.
- FOR ABORTED TAKEOFF AT AIRSPEED GREATER THAN 100 KNOTS, ADD 2 MILLION FOOT–POUNDS PER BRAKE IF BRAKES ARE APPLIED SOONER THAN 4 SECONDS AFTER THROTTLE IS RETARDED TO IDLE.
- IF LANDING WITH ASYM–METRICAL WING LOADING, TAKE ACTION AS APPLIC–ABLE FOR NEXT HIGHER ENERGY ZONE TO ALLOW FOR UNEQUAL BRAKE ENERGY DISTRIBUTION.



GR1F–16CJ–1–1–0025A37 @

Figure C2-12. (Sheet 1)

Brake Energy Limits — Max Effort Braking With Drag Chute

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

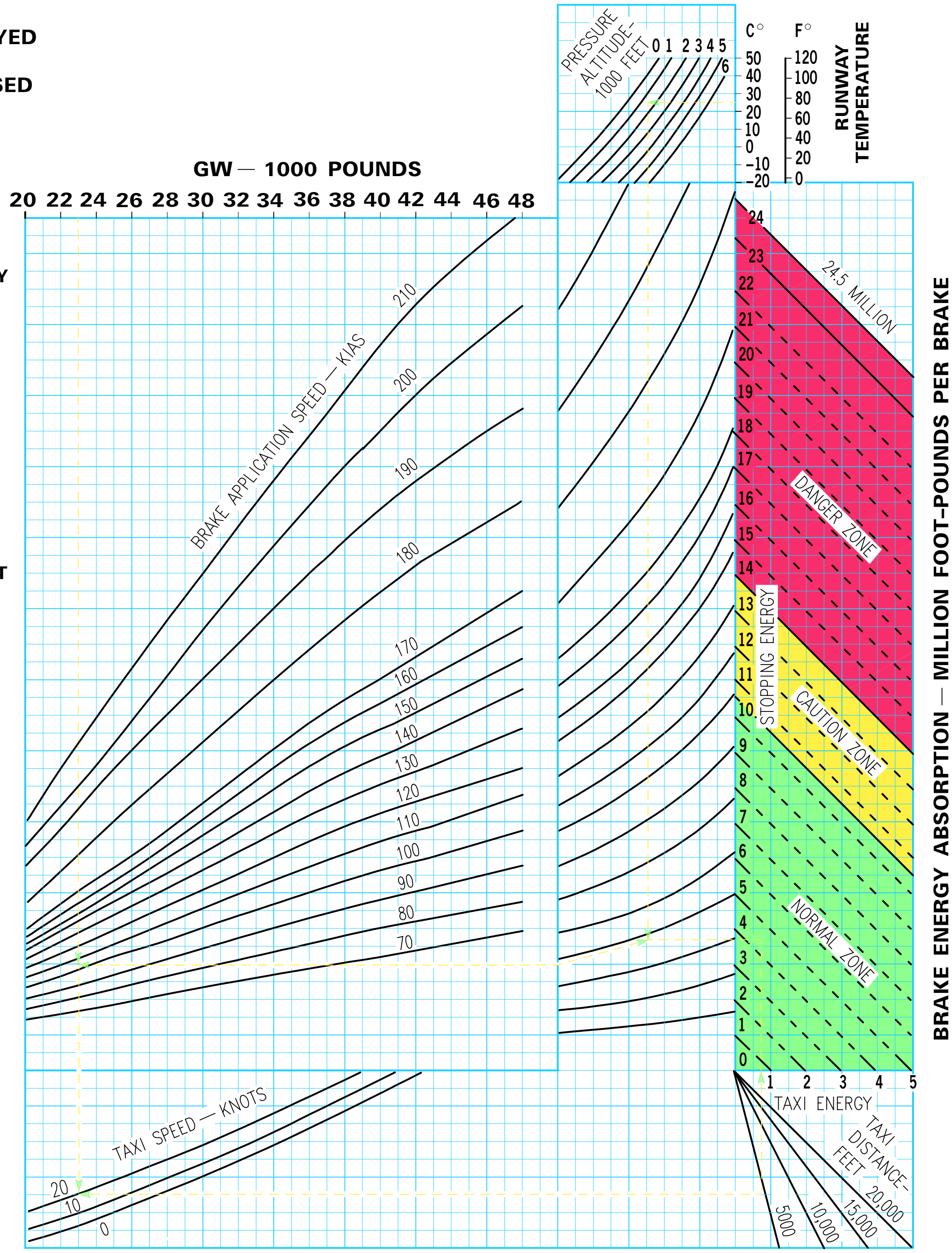
CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- TEF'S DOWN
- DRAG CHUTE DEPLOYED BELOW 170 KIAS
- DRAG CHUTE RELEASED PRIOR TO TAXI

CONDITIONS:
- NORMAL IDLE THRUST

CAUTION

- EXCEEDING 24.5 MILLION FOOT-POUNDS PER BRAKE CUMULATIVE TOTAL ENERGY MAY RESULT IN LOSS OF BRAKING.
- DEPLOYING DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

NOTES:
- ADD TAILWIND COMPONENT OR SUBTRACT ONE-HALF HEADWIND COMPONENT FROM AIRSPEED WHEN BRAKES ARE APPLIED.
- FOR ABORTED TAKEOFF AT AIRSPEED GREATER THAN 100 KNOTS, ADD 2 MILLION FOOT-POUNDS PER BRAKE IF BRAKES ARE APPLIED SOONER THAN 4 SECONDS AFTER THROTTLE IS RETARDED TO IDLE.
- IF LANDING WITH ASYMMETRICAL WING LOADING, TAKE ACTION AS APPLICABLE FOR NEXT HIGHER ENERGY ZONE TO ALLOW FOR UNEQUAL BRAKE ENERGY DISTRIBUTION.



GR1F-16CJ-1-1-6026A37

Figure C2-12. (Sheet 2)

Brake Energy Limits — Max Effort Braking

ACTION TO BE TAKEN AS APPLICABLE TO THE AMOUNT OF BRAKE ENERGY ABSORBED

DANGER ZONE

1. REFER TO T.O. GR1F-16CJ-1, HOT BRAKES.
2. USE MODERATE BRAKING BELOW 25 KNOTS GROUNDSPEED AND MAINTAIN FORWARD MOTION.
3. THE SIDE AREA WITHIN 300 FEET OF THE MLG TIRES SHOULD BE REGARDED AS UNSAFE FOR 45 MINUTES AFTER AIRCRAFT HAS STOPPED UNLESS THE FUSIBLE PLUGS HAVE RELIEVED TIRE PRESSURE.
4. HYDRAULIC FLUID OR TIRE FIRE IS IMMINENT. APPROACH MLG FROM FRONT OR REAR FOR FIREFIGHTING PURPOSES ONLY. APPLY EXTINGUISHING AGENT AS FOG OR FOAM DIRECTLY ON THE WHEELS.

CAUTION ZONE

1. REFER TO T.O. GR1F-16CJ-1, HOT BRAKES.
2. THE SIDE AREA WITHIN 300 FEET OF THE MLG TIRES SHOULD BE REGARDED AS UNSAFE FOR 45 MINUTES AFTER AIRCRAFT HAS STOPPED UNLESS THE FUSIBLE PLUGS HAVE RELIEVED TIRE PRESSURE.
3. DO NOT ATTEMPT TAKEOFF UNTIL BRAKE HOUSINGS, WHEEL RIMS, AND TIRES HAVE COOLED ENOUGH TO PERMIT AT LEAST 15 SECONDS OF CONTINUOUS BARE HAND CONTACT. THIS COOLING PERIOD IS TO PREVENT POSSIBLE TIRE FAILURE DURING TAKEOFF OR IN FLIGHT.

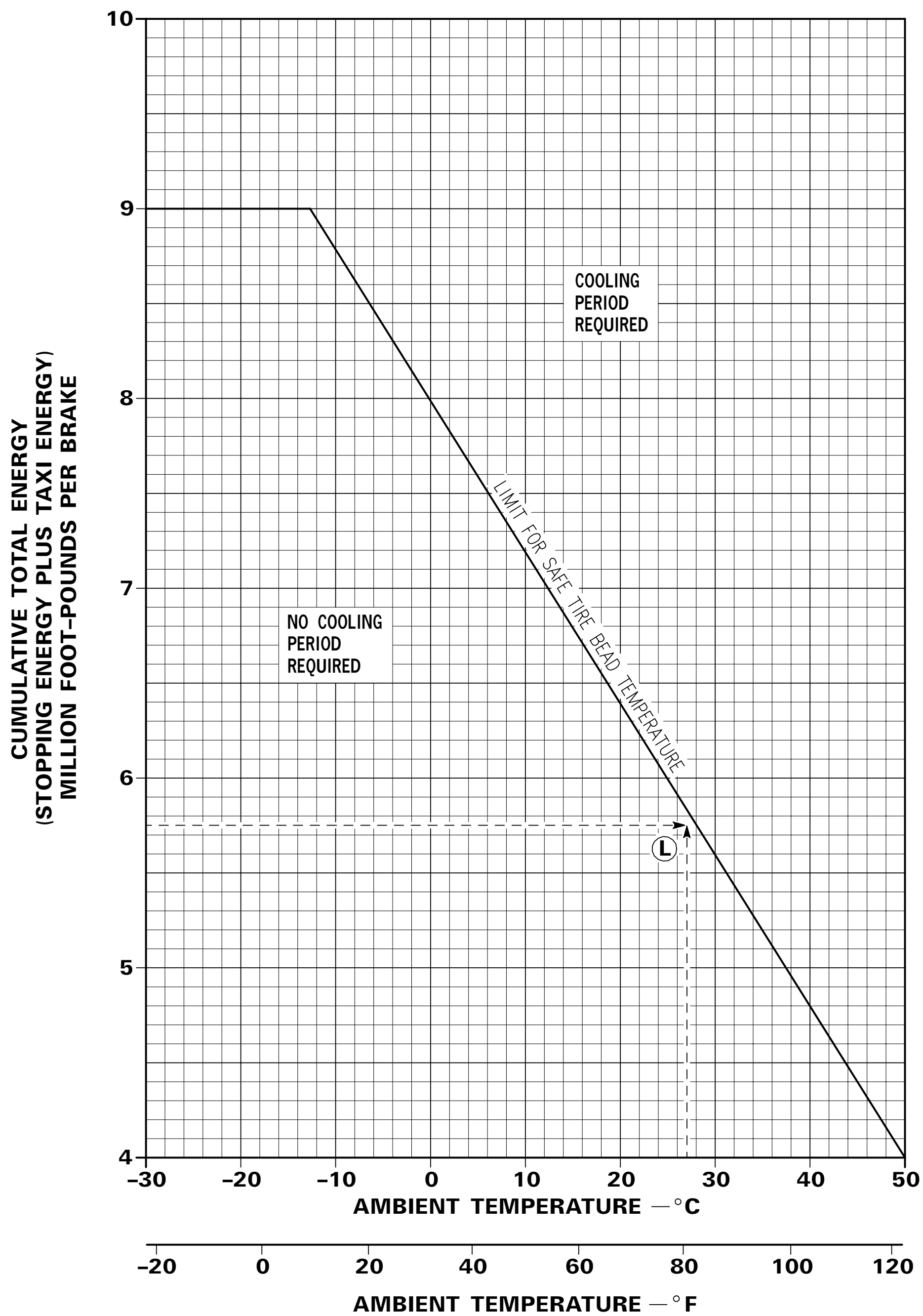
NORMAL ZONE

1. DO NOT SET PARKING BRAKE IF AIRCRAFT HAS FLOWN IN THE PAST 2 HOURS OR IF CUMULATIVE TOTAL ENERGY EXCEEDS 9 MILLION FOOT-POUNDS PER BRAKE. OTHER ACTION TO BE TAKEN IS DETERMINED BY CUMULATIVE TOTAL ENERGY AND AMBIENT TEMPERATURE, AS INDICATED BY SAFE TIRE BEAD TEMPERATURE CHART.
2. IF CUMULATIVE TOTAL ENERGY EXCEEDS THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE:
   A. DO NOT ATTEMPT TAKEOFF UNTIL BRAKE HOUSINGS, WHEEL RIMS, AND TIRES HAVE COOLED ENOUGH TO PERMIT AT LEAST 15 SECONDS OF CONTINUOUS BARE HAND CONTACT. THIS COOLING PERIOD IS TO PREVENT POSSIBLE TIRE FAILURE DURING TAKEOFF OR IN FLIGHT.

   B. A COOLING PERIOD OF APPROXIMATELY 30 MINUTES PLUS AN ADDITIONAL 30 MINUTES FOR EACH 1 MILLION FOOT-POUNDS BRAKE ENERGY ABOVE THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE IS REQUIRED.
3. IF CUMULATIVE TOTAL ENERGY DOES NOT EXCEED THE LIMIT FOR SAFE TIRE BEAD TEMPERATURE AND THE AIRCRAFT HAS NOT FLOWN IN THE PAST 2 HOURS, PARKING BRAKE MAY BE SET AND NO BRAKE COOLING IS REQUIRED PRIOR TO SUBSEQUENT TAKEOFF. DETERMINE MAXIMUM BRAKE APPLICATION SPEED IN CASE SUBSEQUENT TAKEOFF IS ABORTED BY SUBTRACTING CUMULATIVE TOTAL ENERGY FROM THE 23.5 MILLION FOOT-POUNDS.

Figure C2-12. (Sheet 3)

Safe Tire Bead Temperature — For Quick Turnaround



1F–16X–1–1–1012A

Figure C2-13.

PART 3 — CLIMB

TABLE OF CONTENTS

LIST OF CHARTS

Data needed to plan for MIL and MAX AB climbs is contained in this part, including climbout from takeoff, climb to cruise, and ceiling altitudes. Refer to Part 8 for information regarding combat ceiling and climb to combat ceiling.

GROUND OPERATION FUEL CONSUMPTION

Idle fuel flow is approximately 20 pounds per minute. An average of 25 pounds per minute is used for ground operation.

CLIMBOUT FUEL, TIME, AND DISTANCE

Figures C3-1 and C3-2 contain data describing fuel, time, and distance from end of runway brake release to climb airspeed. Effects of temperature, GW, altitude, and drag index are shown. A constant throttle position (MIL or MAX AB) from brake release to MIL or MAX AB climb speed is used. After takeoff, a constant pitch attitude of 12 degrees is held until 2500 feet AGL. A level acceleration to climb speed is then made. In some cases, climb airspeed will be reached prior to gaining 2500 feet AGL. This technique was developed for performance calculations only and not as an operational procedure.

REFER TO FIGURES C3-1 AND C3-2.

Enter chart with temperature (A), proceed horizontally to altitude (B), and then down to intersect GW (C). From there, proceed horizontally to drag baseline and parallel nearest guideline to drag index (D). Finally, proceed horizontally to read fuel consumed (E), time (F), and distance (G).

SAMPLE PROBLEM (MIL, FIGURE C3-1).

A.	Temperature	=	40°C
B.	Altitude	=	2000 feet
C.	GW	=	33,000 pounds
D.	Drag index	=	150
E.	Fuel consumed	=	398 pounds
F.	Time	=	2.2 minutes
G.	Distance	=	9.6 nm

CRUISE CEILINGS AND OPTIMUM CRUISE ALTITUDE

MIL cruise ceiling, MIL service ceiling, and optimum cruise altitude, are shown in figure C3-3. All data is based on use of optimum cruise mach number. A correction factor to adjust MIL cruise ceiling to service ceiling is given on the chart.

REFER TO FIGURE C3-3.

Enter upper portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read cruise altitude (C). Enter lower portion of chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read MIL cruise ceiling (D).

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Drag index	=	230
C.	Optimum cruise altitude	=	33,045 feet
D.	MIL cruise ceiling (300 fpm)	=	34,095 feet
E.	MIL service ceiling (100 fpm)	=	34,760 feet

MIL CLIMB

Figure C3-4 contains MIL climb data. Fuel consumed data is shown in sheet 1 and time and distance data is shown in sheet 2. The data is for climbs starting at sea level, but performance data for climbs from any altitude to a higher altitude may also be determined. The climb schedules are defined by airspeed/mach number. Climb at the scheduled airspeed to the scheduled mach number, then maintain the mach number to the desired altitude. When starting a climb at an altitude above the airspeed/mach number transition point, climb at the scheduled mach number. The schedules are tabulated as a function of drag index and are selected to maintain maximum fuel efficiency while still providing near maximum rate of climb. To obtain data for climb to cruise ceiling, use the dashed cruise ceiling drag index lines.

REFER TO FIGURE C3-4.

Enter sheet 1 of chart at initial GW (A), proceed horizontally to final altitude (B), vertically to drag index (C), and horizontally to air deviation temperature (D). Continue horizontally to read fuel consumed (E). If initial altitude is above sea level, reenter chart at initial GW (A), proceed horizontally to initial altitude (F), and continue as above to read fuel used (G). The difference between fuel consumed to final altitude and fuel used to initial altitude is the fuel used to climb from initial to final altitude. Climb time and distance are found in a similar manner from sheet 2.

SAMPLE PROBLEM.

MIL climb to optimum cruise altitude.

A.	Initial GW	=	33,000 pounds
B.	Final altitude	=	33,045 feet (cruise altitude for 33,000 pounds, drag index = 230)
C.	Drag index	=	230
D.	Air temperature deviation	=	+10°C
E.	Fuel consumed to final altitude	=	1348 pounds
F.	Initial altitude	=	2500 feet
G.	Fuel consumed to initial altitude	=	74 pounds
•	Fuel consumed to climb 1348 – 74	=	1274 pounds

Note that the cruise altitude used above is based on an initial climb GW of 33,000 pounds. This cruise altitude should be adjusted to account for the fuel consumed during climb and the climb fuel recomputed. Initial GW is unchanged.

A.	Initial GW	=	33,000 pounds
H.	Revised final altitude	=	33,988 feet based on end-of-climb weight (33,000 – 1274 = 31,726 from figure C3-3)
C.	Drag index	=	230
D.	Air temperature deviation	=	+10°C
I.	Fuel consumed to final altitude	=	1414 pounds
F.	Initial altitude	=	2500 feet
G.	Fuel consumed to initial altitude	=	74 pounds
•	Fuel consumed in climb	=	1414 – 74 = 1340 pounds
•	Distance in climb	=	95 – 3 = 92 nm
•	Time in climb	=	11.6 – 0.4 = 11.2 minutes
•	Climb speed (for drag index = 230)	=	369 KIAS/0.80 mach

MAX AB CLIMB

Figure C3-5, sheets 1 and 2, presents MAX AB climb data. The climb schedule given on sheet 1 results in minimum time-to-climb to altitude at subsonic speeds.

REFER TO FIGURE C3-5.

Refer to instructions under MIL CLIMB, above.

MIL Climbout Fuel, Time, and Distance

DATA BASIS ESTIMATED

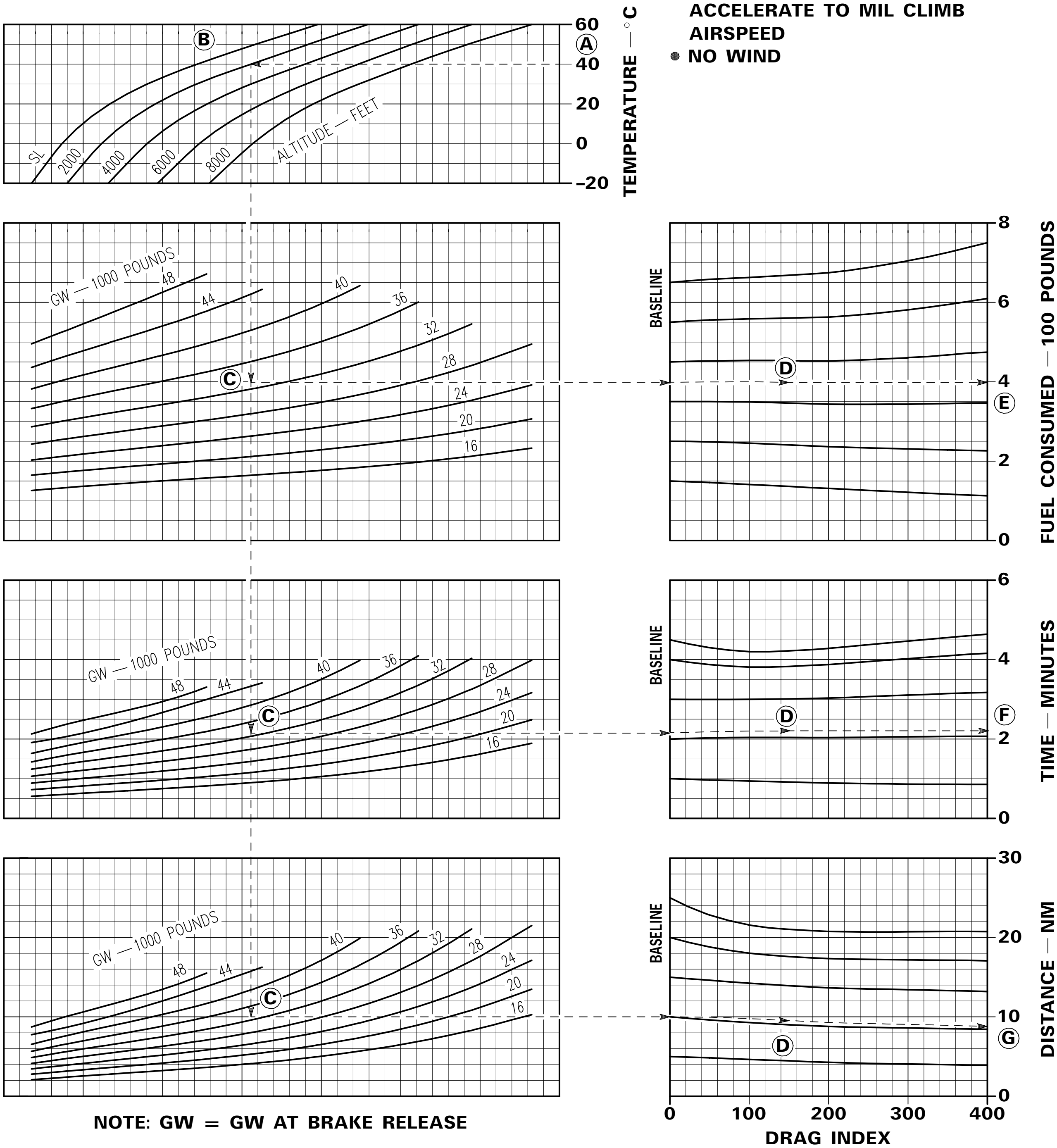
ENGINE F100–PW–229/CFT

CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE TO MIL CLIMB AIRSPEED
- NO WIND



NOTE: GW = GW AT BRAKE RELEASE

1F–16CJ–1–1–1027X37@

Figure C3-1.

MAX AB Climbout Fuel, Time, and Distance

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF

CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE AT MAX AB TO MIL CLIMB AIRSPEED
- NO WIND

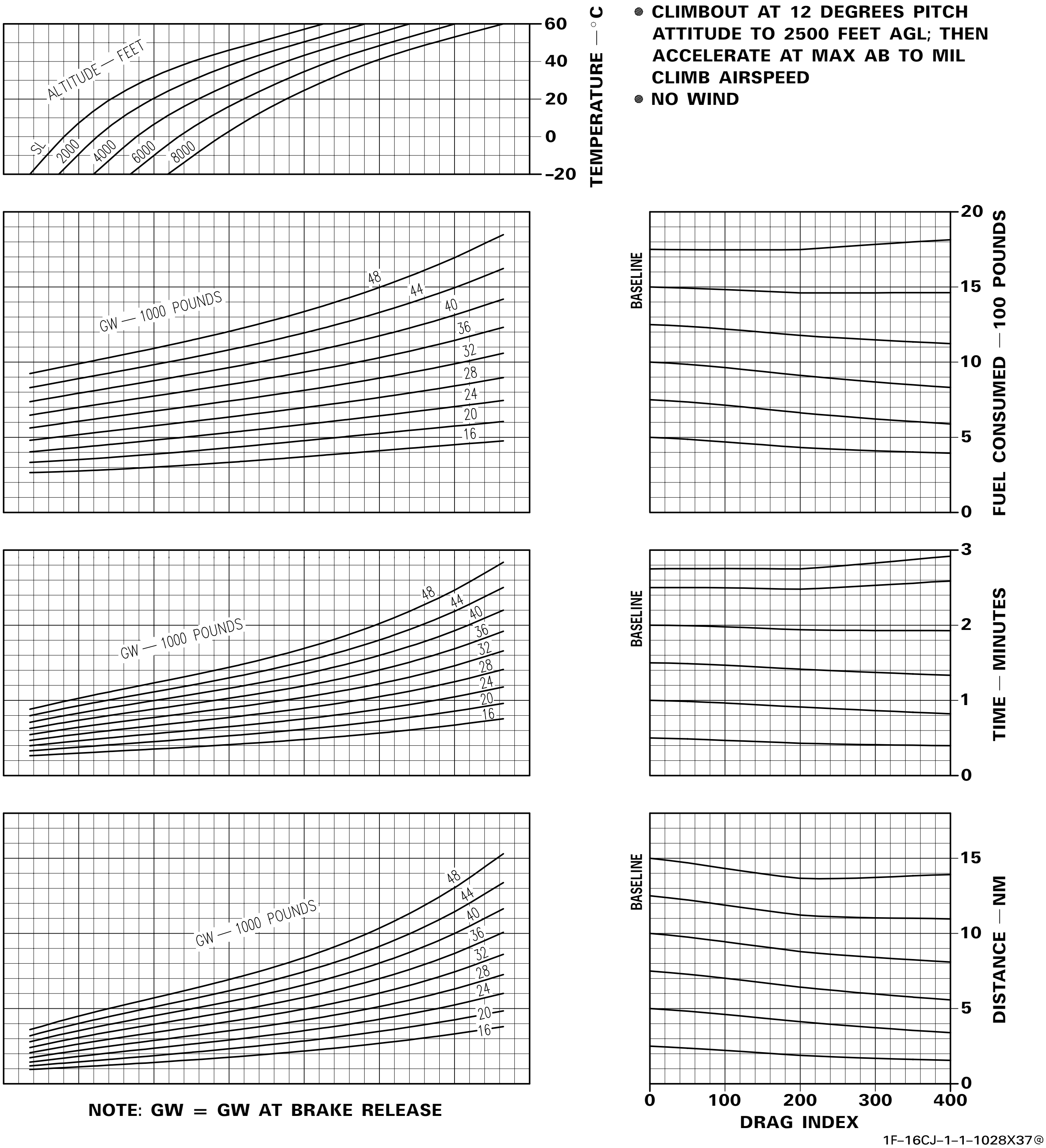


Figure C3-2. (Sheet 1)

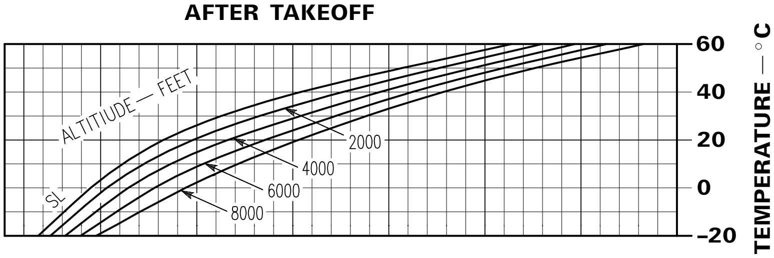
MAX AB Climbout Fuel, Time, and Distance

DATA BASIS ESTIMATED

ENGINE F100–PW–229/CFT

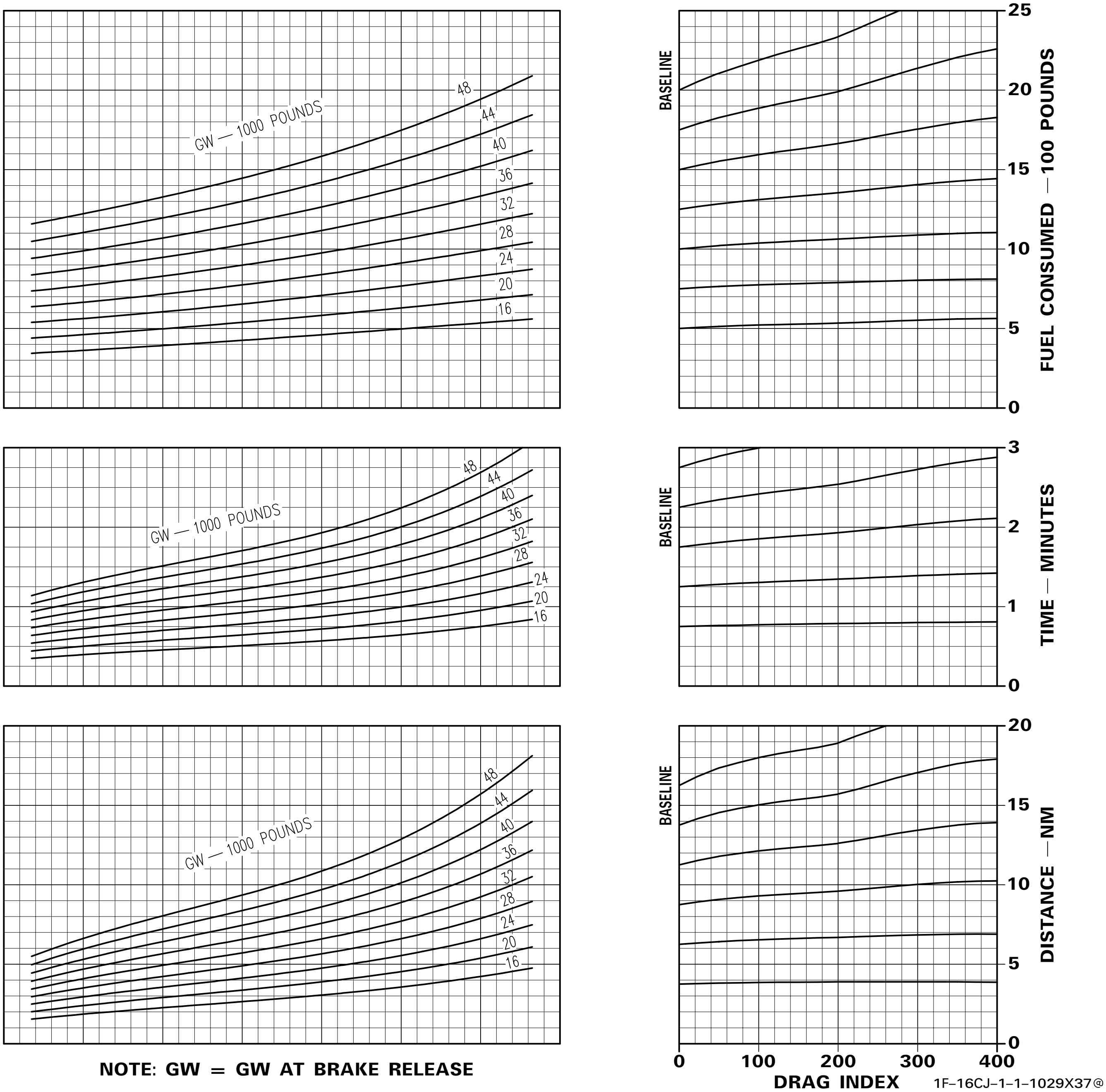
CONFIGURATION:

- LG/TEF'S RETRACTED 8 SECONDS AFTER TAKEOFF



CONDITIONS:

- DATA INCLUDES GROUND RUN FUEL, TIME AND DISTANCE FROM END OF RUNWAY BRAKE RELEASE TO CLIMB AIRSPEED
- CLIMBOUT AT 12 DEGREES PITCH ATTITUDE TO 2500 FEET AGL; THEN ACCELERATE AT MAX AB TO MAX AB CLIMB AIRSPEED
- NO WIND



NOTE: GW = GW AT BRAKE RELEASE

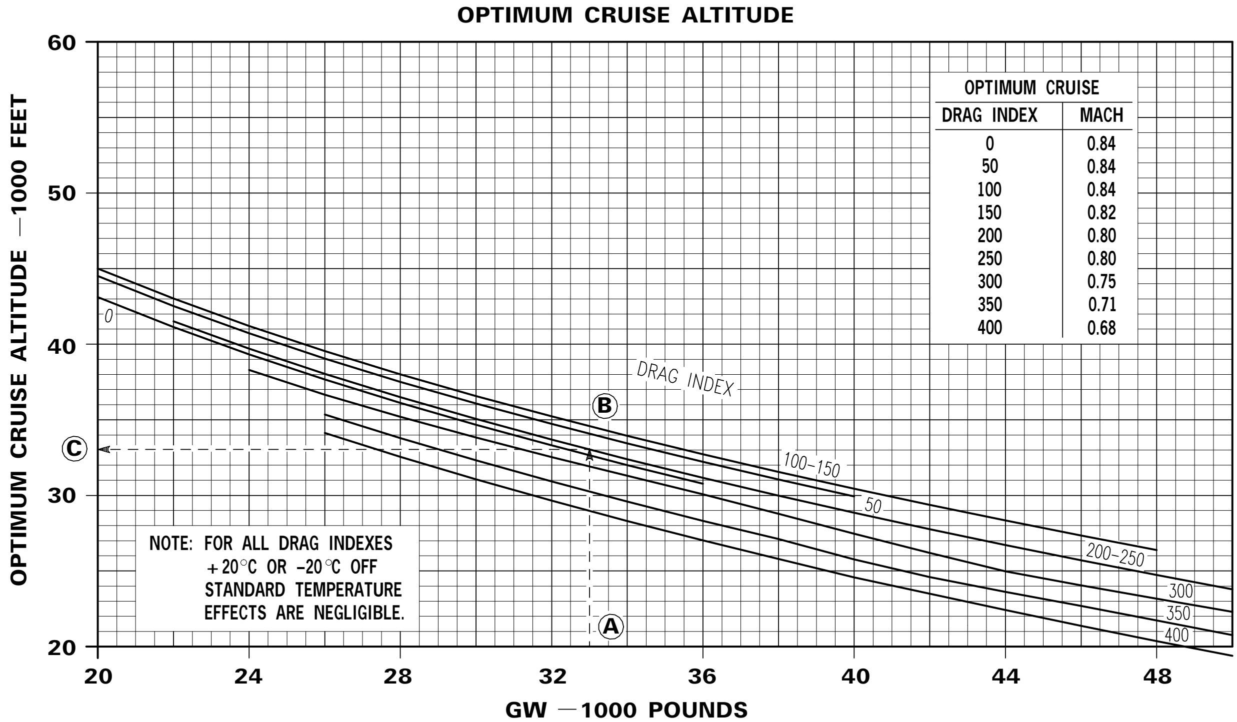
Figure C3-2. (Sheet 2)

Cruise Ceilings and Optimum Cruise Altitude

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONDITIONS:

- STANDARD DAY
- OPTIMUM CRUISE MACH NUMBER



OPTIMUM CRUISE	
DRAG INDEX	MACH
0	0.84
50	0.84
100	0.84
150	0.82
200	0.80
250	0.80
300	0.75
350	0.71
400	0.68

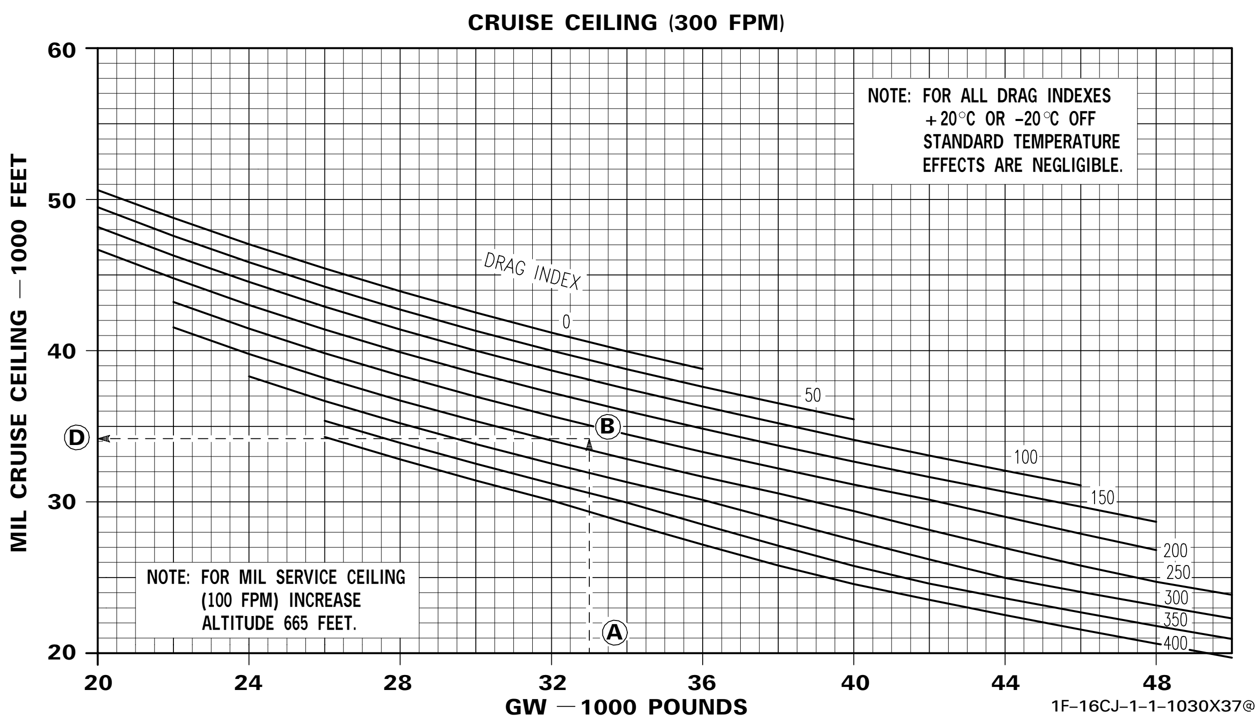
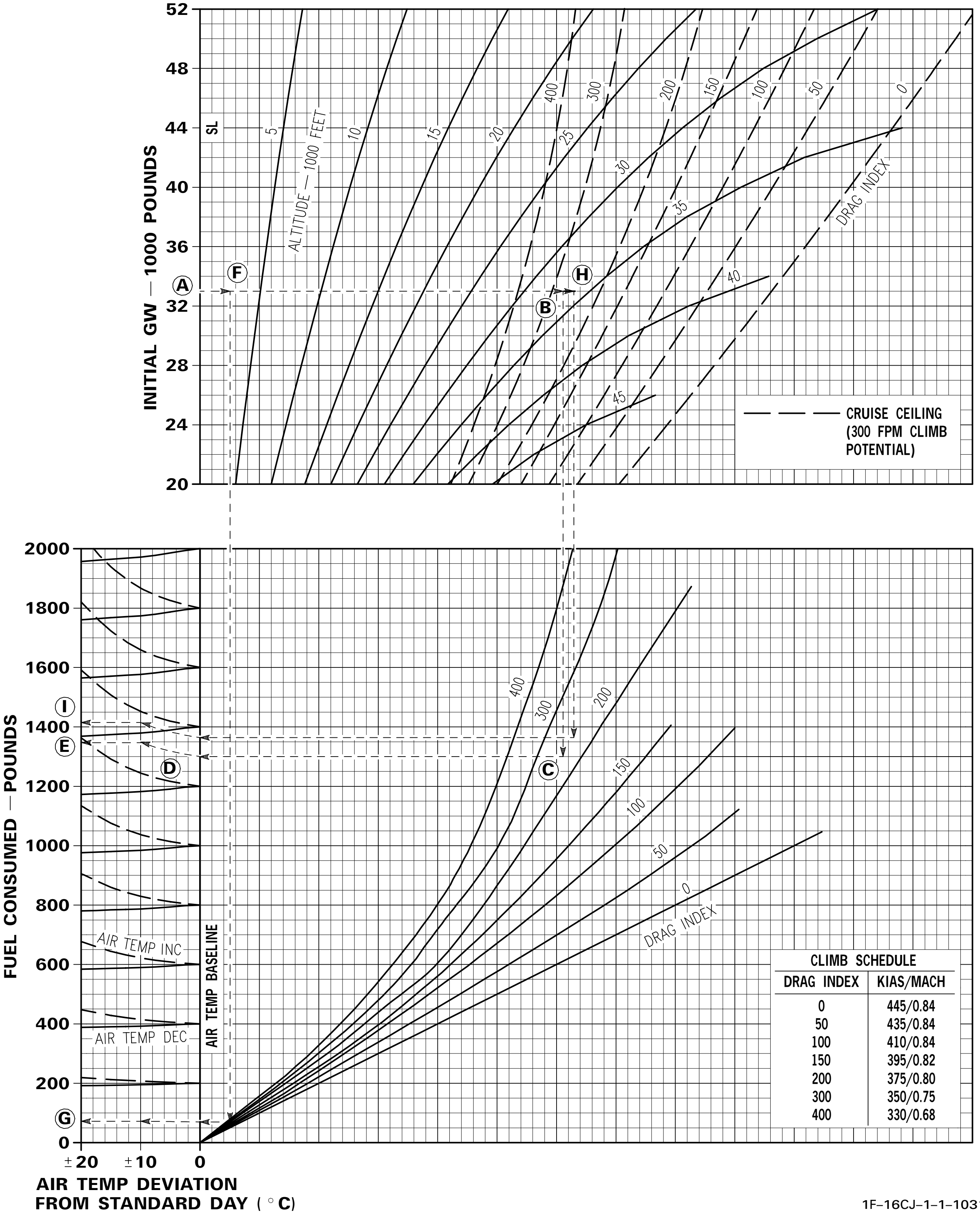


Figure C3-3.

MIL Climb — Fuel Consumed

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONDITIONS:
- STANDARD DAY



CLIMB SCHEDULE

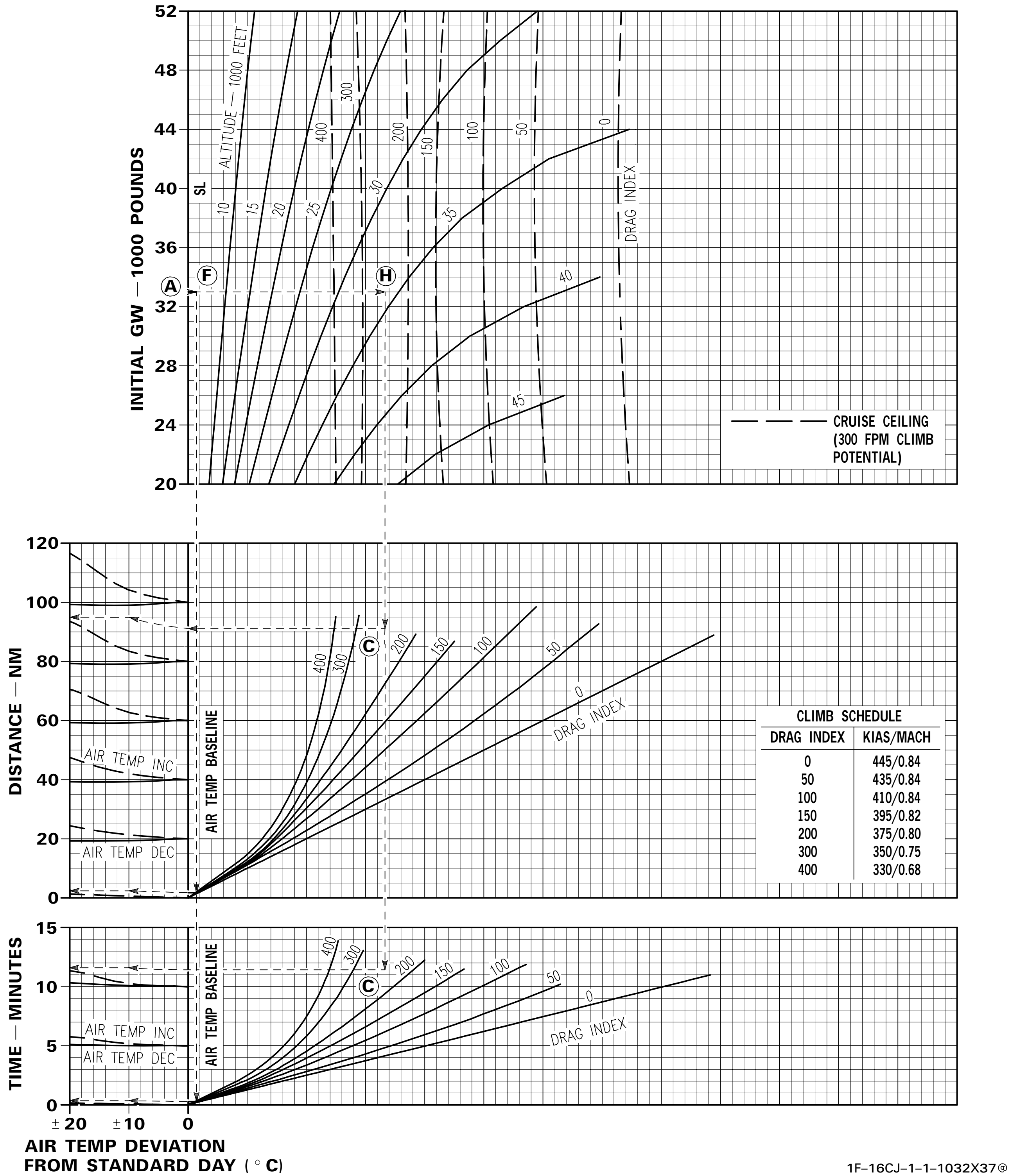
DRAG INDEX	KIAS/MACH
0	445/0.84
50	435/0.84
100	410/0.84
150	395/0.82
200	375/0.80
300	350/0.75
400	330/0.68

Figure C3-4. (Sheet 1)

MIL Climb — Distance and Time

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONDITIONS:
- STANDARD DAY



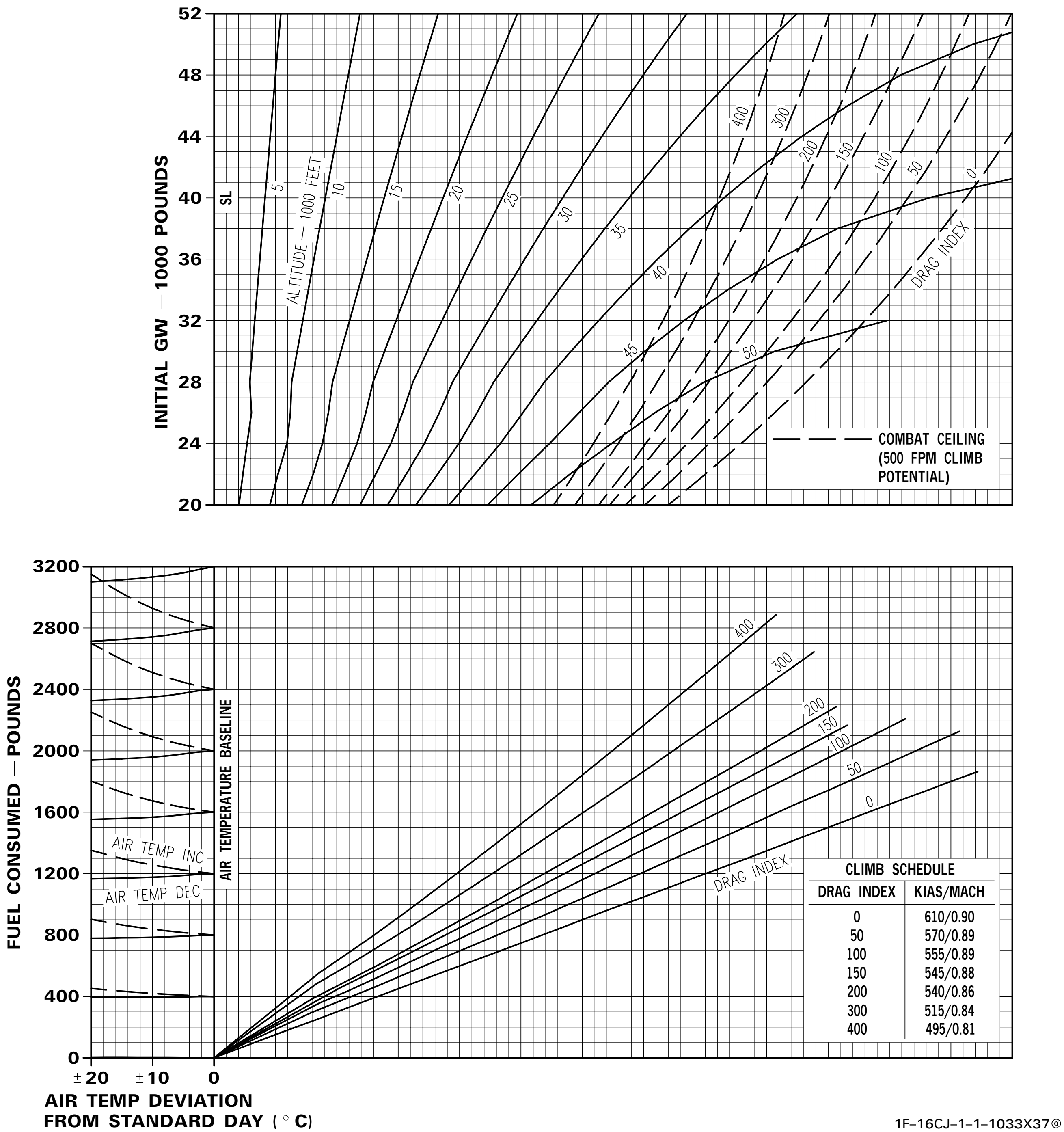
CLIMB SCHEDULE	
DRAG INDEX	KIAS/MACH
0	445/0.84
50	435/0.84
100	410/0.84
150	395/0.82
200	375/0.80
300	350/0.75
400	330/0.68

Figure C3-4. (Sheet 2)

MAX AB Climb — Fuel Consumed

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONDITIONS:
- STANDARD DAY



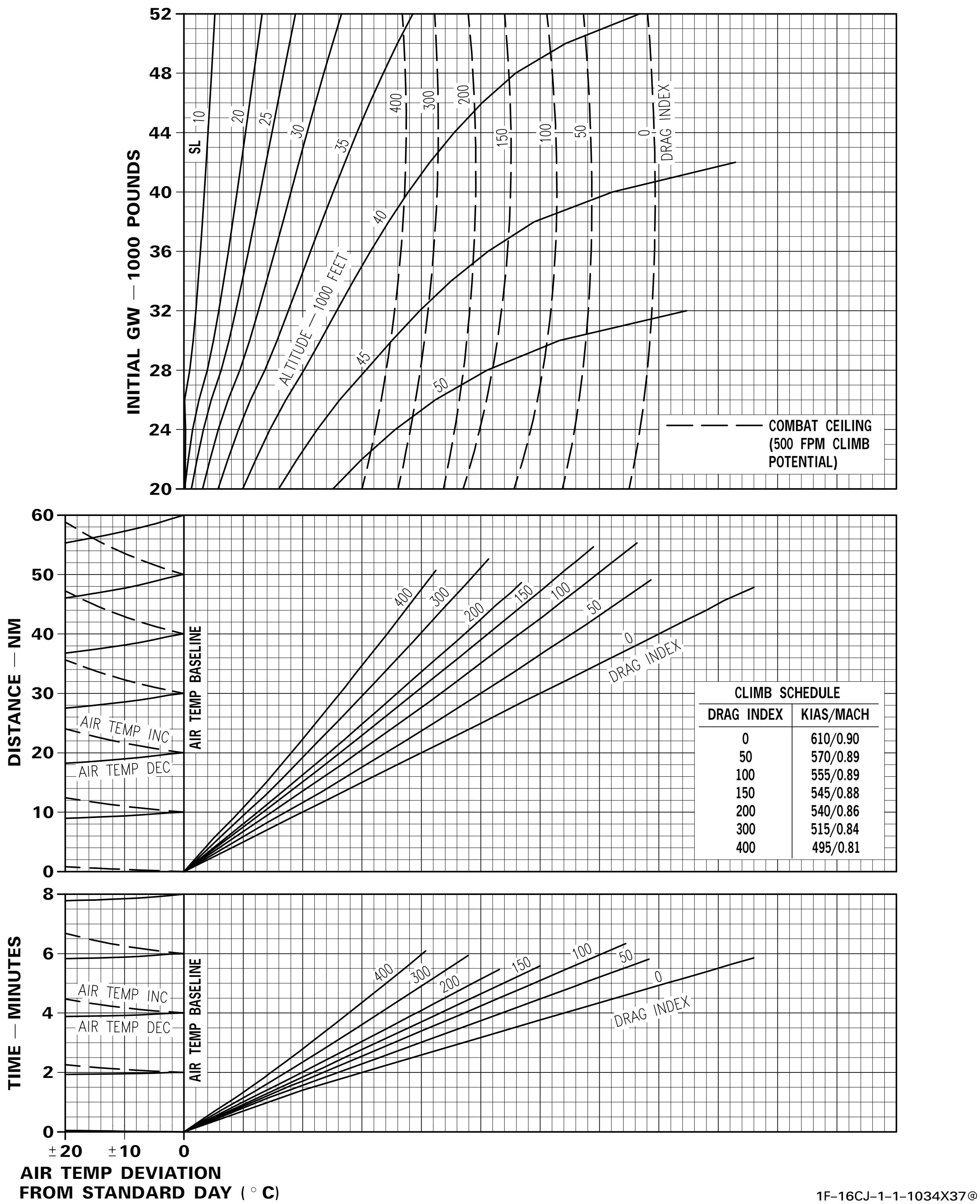
DRAG INDEX	KIAS/MACH
0	610/0.90
50	570/0.89
100	555/0.89
150	545/0.88
200	540/0.86
300	515/0.84
400	495/0.81

Figure C3-5. (Sheet 1)

MAX AB Climb — Distance and Time

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONDITIONS:
- **STANDARD DAY**



CLIMB SCHEDULE

DRAG INDEX	KIAS/MACH
0	610/0.90
50	570/0.89
100	555/0.89
150	545/0.88
200	540/0.86
300	515/0.84
400	495/0.81

Figure C3-5. (Sheet 2)

PART 4 – CRUISE

TABLE OF CONTENTS

LIST OF CHARTS

CRUISE DATA

The cruise data enables the mission planner to calculate the optimum cruise performance available for most combinations of flight conditions. It is apparent from the Subsonic Cruise tables that the GW's for some of the drag indexes are not realistic. This data is only used to give good results when extrapolation of the data is required. One conversion chart is supplied as an aid in computing TAS and fuel flow. The following considerations will assist in selecting the combination of flight conditions and techniques which will result in required mission performance:

- Optimum Mach/Optimum Altitude: A cruise-climb technique is required. Mach remains constant throughout the cruise while altitude increases as fuel is consumed. Changes in optimum mach due to changes in GW are insignificant. Use of this technique will result in maximum attainable range (including maximum aircraft capability).
- Optimum Mach/Constant Altitude: Mach number is decreased as fuel is consumed. This cruise technique will yield maximum cruise performance at a given altitude.
- Constant Mach/Constant Altitude: Cruise at a given mach and altitude condition. This technique does not usually provide maximum performance but is often used due to time and flightpath constraints.

OPTIMUM MACH/OPTIMUM ALTITUDE CRUISE

Detailed optimum cruise-climb performance data is given in figure C4-1. Cruise data is shown as specific range and optimum altitude versus GW for lines of drag index. Optimum cruise mach numbers are tabulated on each drag index line. Fuel flow may be computed from figure C4-2.

REFER TO FIGURE C4-1.

Enter chart with cruise GW (A) and proceed vertically upward to drag index (B) in both the lower and upper portions of the chart. In the lower portion of the chart, proceed to the left from (B) to read specific range (C). In the upper portion of the chart, proceed to the left from (B) to read optimum cruise altitude (D). Optimum cruise mach number is obtained from the mach numbers indicated on the drag index lines in the lower portion of the chart.

SAMPLE PROBLEM.

A. GW	=	33,000 pounds
B. Drag index	=	230
C. Specific range	=	0.104 nm per pound of fuel
D. Optimum cruise altitude	=	33,045 feet
• Optimum cruise mach	=	0.80

FUEL FLOW CONVERSION

The Fuel Flow Conversion chart, figure C4-2, is used to convert specific range and speed into fuel flow.

REFER TO FIGURE C4-2.

To convert specific range into fuel flow, enter chart with mach number (A), proceed to the right to temperature (standard day temperature is shown on figure C1-5) (B), and then proceed upward, reading KTAS at (C). Continue to specific range line (D), and finally, proceed to the left to read fuel flow (E).

SAMPLE PROBLEM.

A. Optimum cruise altitude	=	33,045 feet
• Optimum cruise mach	=	0.80
B. Temperature	=	–56.5°C (Standard day temperature is shown)
C. KTAS	=	457
D. Specific range	=	0.104 nm per pound of fuel
E. Fuel flow	=	4404 pounds per hour

SUBSONIC CRUISE TABLES

The Subsonic Cruise tables, figure C4-3, present dry thrust fuel flow data for a range of constant cruise altitudes (sea level-45,000 feet), true airspeeds (180-690 knots), GW's (20,000-52,000 pounds), and drag indexes (0-400). True airspeeds and fuel flows for maximum range/endurance cruise at constant altitude and drag index are presented for a range of GW's. If Vmin (minimum true airspeed based on MIL) is greater than 180 knots, then Vmin and the fuel flow at Vmin are shown. Vmax (maximum true airspeed based on MIL) and the fuel flow at Vmax are also shown. Temperature effect factors are presented for ±20°C ambient temperature deviation from standard. Cruise KTAS are presented in increments of 30 KTAS. The fuel flows are shown in PPH; therefore, the distance flown and fuel consumed at some specified cruise time may be quickly evaluated.

REFER TO FIGURE C4-3.

To find fuel flow for cruise at a constant true airspeed and altitude, enter the table with appropriate drag index, KTAS, and GW. Then read the fuel flow in PPH. To find fuel flow and KTAS at constant altitude cruise for Vmin, Vmax, maximum endurance, or maximum range, enter the table with drag index and GW. Then read standard fuel flow and KTAS for the specified condition. Temperature effect factors are found on the right side of each chart. Multiply standard day fuel flows by their respective factor to get final fuel flows for ±20°C deviation from standard. To compute fuel flows for other temperatures, simply ratio the difference between standard day values and ±20°C values for the particular temperature deviation.

True airspeeds for Vmin, Vmax, maximum endurance, and maximum range are affected by ambient temperature and correction factors for these airspeeds are presented on the right side of the chart. These factors are used to correct KTAS in the same manner as described for fuel flows. If the factors are greater than 1, final fuel flow and KTAS increases. If the factors are less than 1, final fuel flow and KTAS decreases.

SAMPLE PROBLEM.

A. Altitude	=	30,000 feet
B. Drag index	=	0
C. GW	=	20,000 pounds
D. KTAS	=	360
E. Standard day ambient temperature	=	–44°C
F. Ambient temperature	=	–34°C
G. Temperature deviation	=	10°C hot

Find fuel consumed and time required to cruise at 360 knots for 180 nm:

H.	Standard day fuel flow	=	1815 PPH
I.	Temperature effect fuel flow factor at +20°C and 360 KTAS	=	1.081
J.	Fuel flow at +20°C hot is 1.081 × 1815	=	1962 PPH
K.	Fuel flow for ambient temperature of −34°C is $1815 + (147 \times \frac{10}{20})$	=	1889 PPH
L.	Time to travel 180 nm at 360 KTAS is $\frac{180}{360}$	=	0.5 hour
M.	Fuel consumed in 0.5 hour of cruise at 360 KTAS is 1889 × 0.5	=	945 pounds

Find fuel consumed and air distance traveled for maximum range cruise for 30 minutes:

N.	Standard day maximum range airspeed	=	432 KTAS
O.	Standard day fuel flow	=	2093 PPH
P.	Temperature effect factor for KTAS at +20°C	=	1.043
Q.	Temperature effect fuel flow factor at +20°C	=	1.059
R.	KTAS at 20°C hot is 1.043 × 432	=	451
S.	Fuel flow at 20°C hot is 1.059 × 2093	=	2216 PPH
T.	KTAS for ambient temperature of −34°C is $432 + (19 \times \frac{10}{20})$	=	442
U.	Fuel flow for ambient temperature of −34°C is $2093 + (123 \times \frac{10}{20})$	=	2155 PPH
V.	Air distance traveled in 30 minutes at 442 KTAS is $\frac{442}{60} \times 30$	=	221 nm
W.	Fuel consumed in 30 minutes of cruise at 442 KTAS is $\frac{2155}{60} \times 30$	=	1078 pounds

To find the fuel flow and KTAS for maximum endurance cruise, use the method outlined above for maximum range cruise; then loiter time = fuel consumed/ fuel flow.

REFER TO FIGURE C4-3.

If an average bank angle of 30 degrees were used in the above problem, an effective GW of 23,100 pounds would have to be used to enter the chart. Find the effective GW by entering the lower right plot with GW (A), follow the guidelines to bank angle (B), and read effective GW (C).

SAMPLE PROBLEM.

A.	GW	=	20,000 pounds
B.	Bank angle	=	30 degrees
C.	Effective GW	=	23,100 pounds

DIVERSION DECISION

The Diversion Decision – Divert and Diversion Decision – Loiter, figure C4-4, contain range and time available data to be used in deciding whether to divert to another base or wait (loiter) until the runway is reopened. Data is given for fuel quantities up to 2000 pounds and for initial altitudes from sea level to 40,000 feet. Range and time available by staying at initial altitude or by climbing to optimum altitude are given. Range and time for climbs to optimum altitude, cruise or loiter, and descents to sea level are included in all data as applicable. No reserve fuel is included in the data.

SAMPLE PROBLEM.

Assume that you have arrived over base at 5000 feet MSL with only 600 pounds of fuel remaining and are informed that the runway is closed due to an accident. Twenty to 30 minutes is required to open the runway. Can you wait (loiter) for the runway to open, or should you divert to a base only 50 nm away? Checking figure C4-4 yields the following information:

- Range Available at 5000 feet MSL = 66 nm (cruise at mach = 0.47, begin enroute descent 16 nm from destination with 102 pounds fuel used in descent).
- Range Available Using Optimum Altitude = 86 nm (MIL climb at 433 KIAS or optimum altitude mach number, whichever is less, to 30,000 feet, cruise at mach 0.72, and begin enroute descent 71 nm from destination with 298 pounds fuel used in descent).

- Loiter Time Available at 5000 feet MSL = 15 minutes (loiter at mach = 0.36, begin descent 12 nm from destination with 84 pounds fuel used in descent).

- Loiter Time Available Using Optimum Altitude = 15 minutes (MIL climb at 433 KIAS or optimum altitude mach number, whichever is less, to 10,000 feet, loiter at mach = 0.39, begin descent 24 nm from destination with 145 pounds fuel used in descent).

Based on this information, a decision to divert to the nearby base would be prudent. Maximum holding time using all remaining fuel, optimum altitude, and an IDLE descent would yield only 15 minutes – too little. Even remaining at 5000 feet MSL, a range of 66 nm is available which would leave a small fuel reserve at the alternate base. Even more reserve fuel would remain if optimum altitude (30,000 feet) were used.

If range and time available (which require a fuel reserve) are needed, find the range and time which would be available if the desired reserve were consumed and deduct those values from range and time available for the total fuel on board. For instance, if 200 pounds reserve fuel had been required in the above problem, 26 nm would be deducted from the 66 nm range available by cruising at 5000 feet. The other range and times available would be adjusted in the same manner. However, note, for this sample problem, 50 nm is not obtainable with 200 pounds reserve.

BEST CRUISE ALTITUDE FOR SHORT RANGE MISSION

For short missions or mission legs, fuel consumption can be minimized by climbing to a lower-than-optimum cruise altitude and descending on course. For distances of 250 nm or less, use of a lower-than-optimum cruise altitude will result in lower overall fuel usage. Figure C4-5 contains information defining the best altitude to use for these short distances as a function of initial GW and distance. For distances greater than 250 nm, optimum cruise altitude should be used. Fuel consumption is given in figure C4-5 as a function of drag index for each initial GW and distance. Also provided in the chart is the range from destination at which to begin a penetration descent or maximum range descent. All data shown is based on beginning at sea level, climbing to the indicated altitude using MIL, cruising at optimum mach at the indicated altitude to the descent point, and executing a penetration descent (300 KIAS, IDLE, and speedbrakes open) or maximum range descent (at schedule KIAS, IDLE, and with speedbrakes closed). MIL climb speed for any drag index may be obtained from Part 3 and optimum KTAS for constant altitude cruise from the Subsonic Cruise Tables. Further guidance to establish the climb and cruise conditions recommended in the Best Altitude for Short Range Mission chart is available through the FCC cruise energy management guidance system. Climb speed for most economical climb may be established through use of the CRUS HOM mode on the upfront control set. Climb speed guidance is displayed on the HUD speed scale (scales switch set to VV/VAH). Once at altitude, optimum cruise mach can be established by using the CAS, TAS, or GND speed guidance displayed on the HUD when the CRUS RNG mode is selected on the upfront control set.

REFER TO FIGURE C4-5.

Enter figure C4-5 with start climb GW (A), desired total mission range (B), and drag index (C). With these given conditions, read best cruise altitude (D), fuel consumed (E), and penetration descent range (F).

SAMPLE PROBLEM.

A.	Start climb GW	=	28,000 pounds
B.	Total mission range	=	150 nm
C.	Drag index	=	200
D.	Best cruise altitude	=	31,900 feet
E.	Fuel consumed	=	1545 pounds
F.	Penetration descent range	=	19.5 nm

Optimum Cruise

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONDITIONS:

- STANDARD DAY

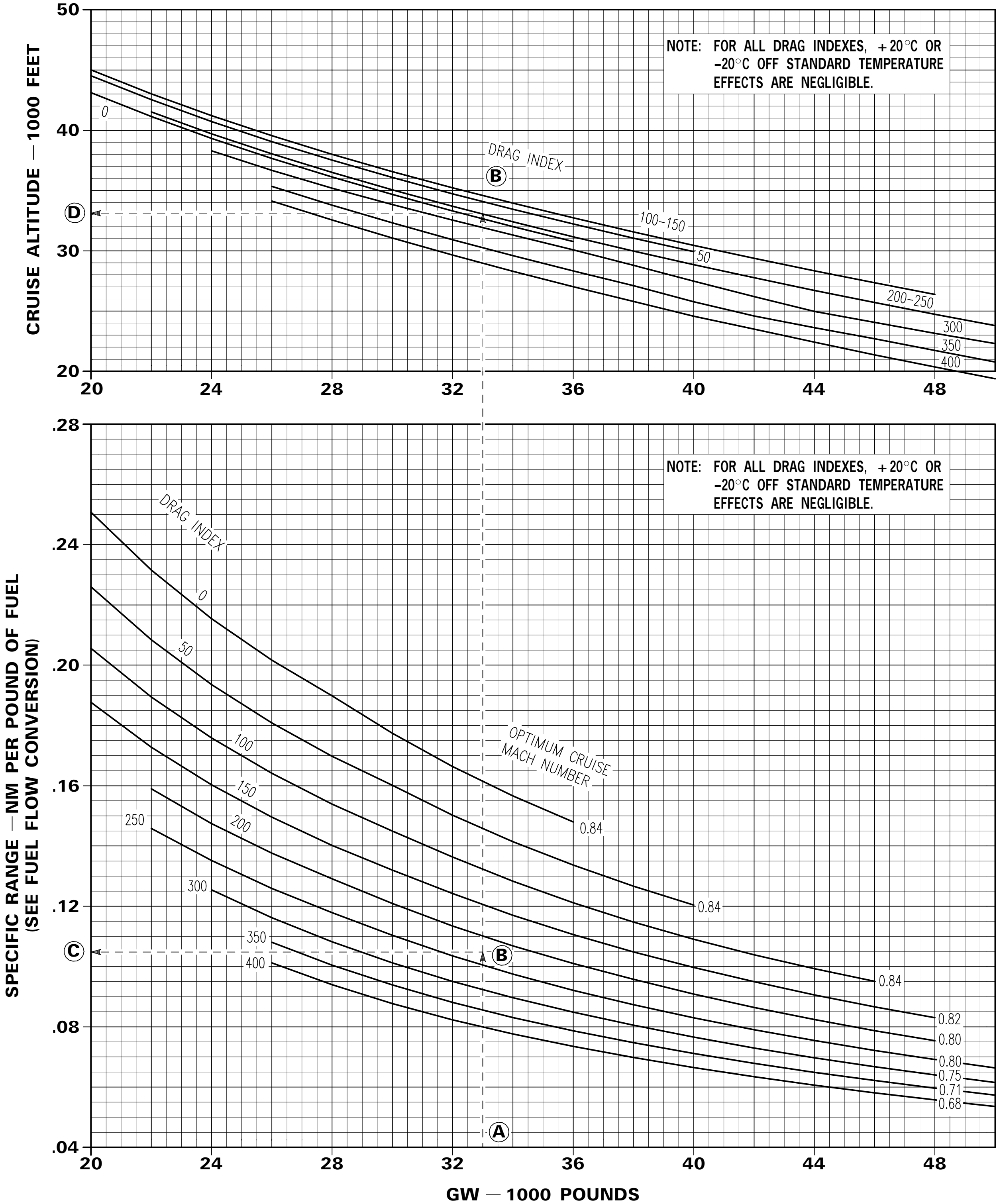


Figure C4-1.

Fuel Flow Conversion

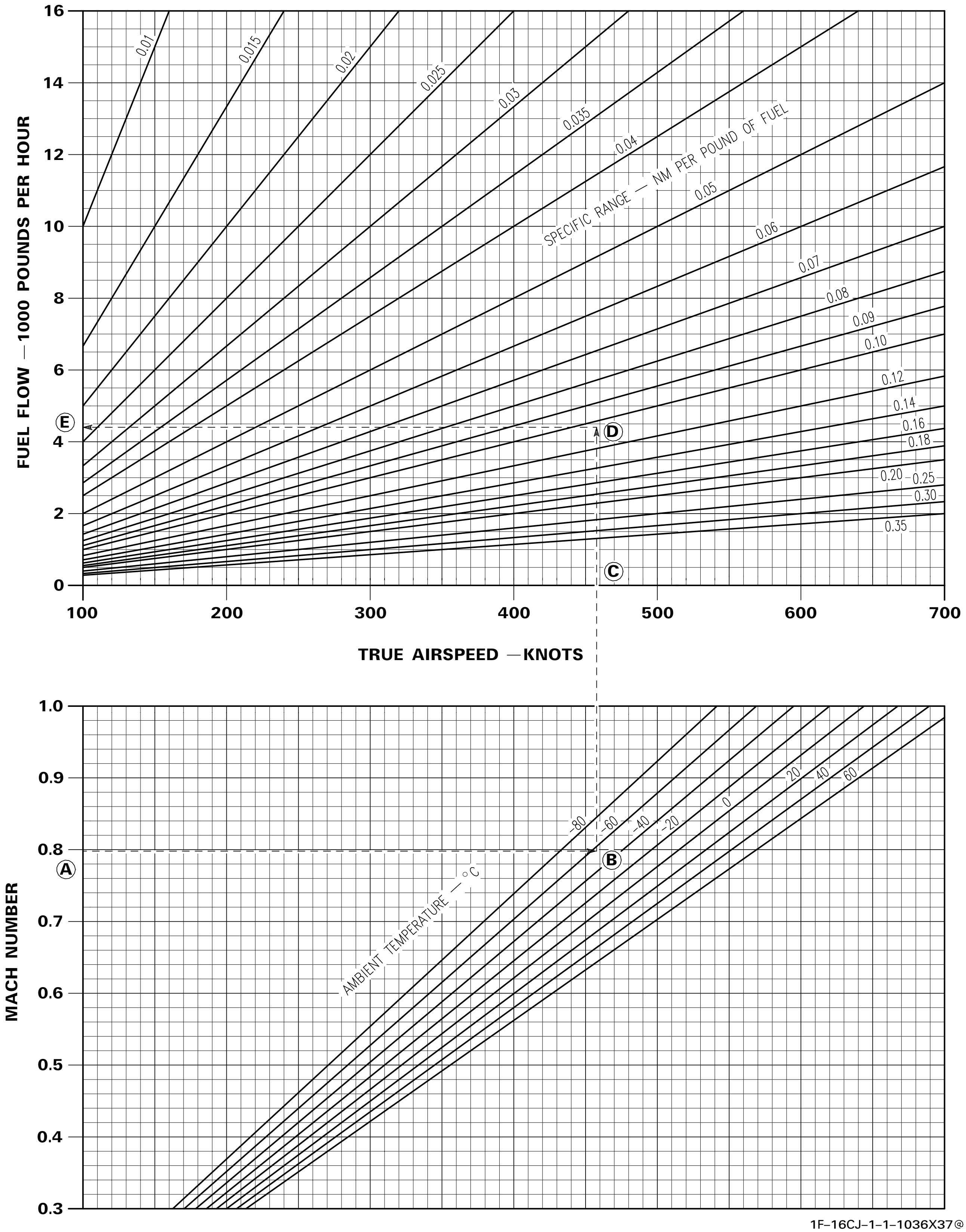


Figure C4-2.

Subsonic Cruise — Effects of Bank Angle

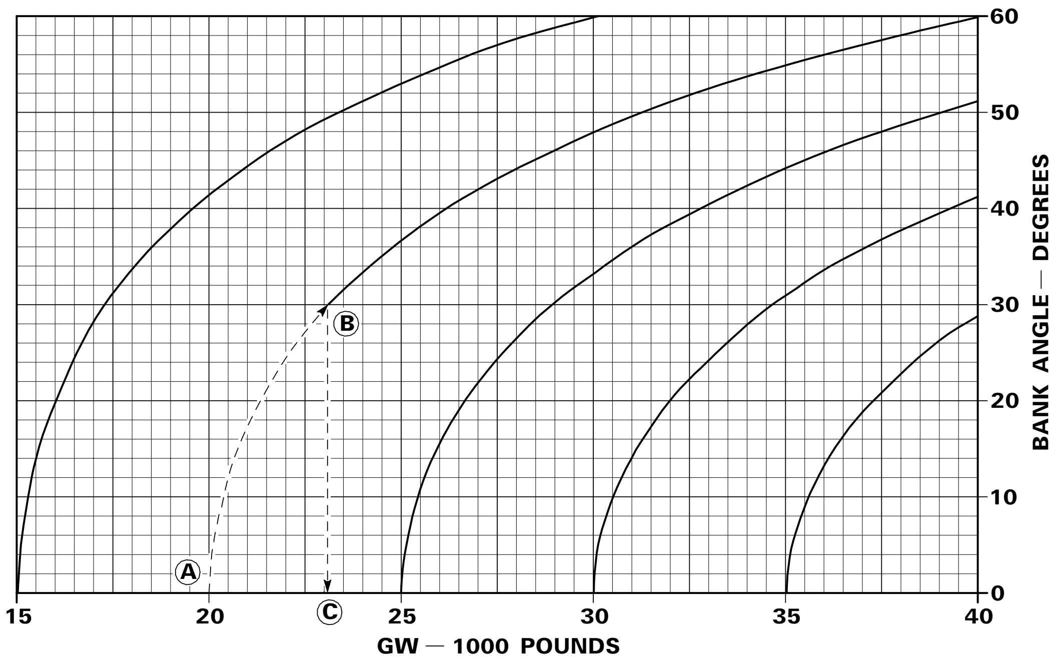


Figure C4-3. (Sheet 1)

Subsonic Cruise — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180	2450	2686	2945	3230	3540	3883	4238	4607	5062	5563	6184	7658	1.084	0.917
	210	2358	2522	2715	2928	3152	3385	3633	3910	4204	4526	4877	5638	1.073	0.936
	240	2472	2583	2709	2858	3020	3197	3401	3610	3828	4060	4304	4845	1.069	0.947
	270	2698	2779	2873	2978	3093	3217	3363	3517	3681	3859	4061	4484	1.058	0.967
	300	3009	3074	3146	3225	3311	3410	3516	3630	3750	3885	4034	4355	1.045	0.978
	330	3363	3414	3472	3537	3608	3685	3768	3858	3957	4063	4174	4416	1.037	0.987
	360	3781	3822	3868	3918	3976	4039	4107	4181	4259	4342	4431	4628	1.029	0.993
	390	4227	4261	4299	4341	4386	4434	4489	4550	4616	4686	4760	4920	1.025	1.005
	420	4779	4811	4846	4884	4923	4962	5005	5051	5102	5159	5221	5355	1.008	1.017
	450	5377	5403	5436	5472	5512	5554	5593	5631	5671	5714	5759	5867	1.000	1.021
	480	6048	6063	6082	6110	6141	6175	6211	6250	6296	6338	6382	6479	0.996	1.023
	510	6851	6863	6879	6898	6918	6943	6970	7000	7033	7068	7106	7188	0.977	1.027
	540	7790	7797	7808	7822	7838	7854	7873	7892	7914	7937	7963	8022	0.971	1.037
	570	8979	8986	8995	9005	9018	9033	9049	9067	9087	9109	9133	9186	0.953	1.091
	600	11,230	11,234	11,240	11,248	11,257	11,267	11,279	11,292	11,307	11,325	11,347	11,394	0.893	1.285
	630	16,851	16,858	16,872	16,888	16,906	16,925	16,947	16,971	16,997	17,024	17,054		0.790	1.345
	660														
	MIL	17,335	17,335	17,335	17,335	17,334	17,334	17,334	17,334	17,333	17,333	17,333	17,332	0.867	0.967
	VMAX	631	631	631	631	631	631	631	631	631	631	631	630	1.013	0.966
	MAX ENDURANCE														
	KTAS	203	213	223	233	242	251	259	265	269	277	285	300	1.034	0.965
	FUEL FLOW	2354	2521	2688	2854	3020	3185	3349	3512	3681	3850	4019	4355	1.047	0.952
	MAX RANGE														
	KTAS	277	292	306	320	331	332	346	360	373	386	397	397	1.034	0.965
	FUEL FLOW	2769	2992	3213	3430	3614	3705	3943	4179	4412	4638	4839	4997	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX	GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
DRAG INDEX = 50	MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
	180	2526	2763	3023	3308	3620	3966	4324	4696	5157	5664	6290	7793	1.082	0.919
	210	2470	2633	2825	3035	3255	3490	3739	4017	4313	4637	4994	5761	1.071	0.939
	240	2627	2737	2861	3009	3170	3344	3544	3750	3966	4200	4446	4991	1.064	0.951
	270	2904	2983	3076	3179	3292	3413	3557	3710	3873	4049	4249	4667	1.052	0.971
	300	3271	3334	3403	3480	3565	3662	3766	3878	3997	4130	4278	4596	1.039	0.981
	330	3688	3738	3795	3858	3927	4001	4082	4170	4268	4372	4482	4721	1.031	0.990
	360	4171	4212	4256	4306	4362	4423	4490	4561	4638	4719	4806	5000	1.024	0.997
	390	4688	4722	4759	4799	4842	4890	4943	5003	5067	5136	5208	5366	1.021	1.011
	420	5323	5354	5388	5425	5462	5501	5542	5587	5636	5692	5756	5895	1.005	1.024
	450	6018	6047	6084	6123	6167	6213	6257	6299	6344	6393	6444	6567	0.994	1.024
	480	6887	6901	6920	6952	6987	7024	7065	7109	7155	7195	7238	7332	0.981	1.025
	510	7881	7889	7901	7916	7933	7957	7984	8014	8047	8083	8123	8207	0.975	1.034
	540	9055	9058	9063	9072	9084	9096	9114	9134	9155	9179	9206	9266	0.965	1.045
	570	10,573	10,575	10,580	10,587	10,596	10,608	10,620	10,635	10,655	10,676	10,699	10,751	0.947	1.113
	600	13,688	13,686	13,686	13,687	13,689	13,693	13,699	13,705	13,714	13,726	13,743	13,779	0.872	1.155
	630														
	660														
	MIL	17,356	17,356	17,356	17,356	17,356	17,356	17,356	17,356	17,356	17,356	17,356	17,357	0.859	0.975
	VMAX	615	615	615	615	615	615	615	614	614	614	614	614	1.014	0.967
	MAX ENDURANCE														
	KTAS	199	207	216	225	234	242	250	258	264	272	279	293	1.034	0.965
	FUEL FLOW	2454	2632	2810	2988	3166	3341	3516	3690	3866	4046	4227	4587	1.047	0.952
	MAX RANGE														
	KTAS	265	275	288	300	312	322	331	337	349	361	373	396	1.034	0.965
	FUEL FLOW	2844	3036	3262	3480	3699	3906	4090	4252	4492	4734	4975	5449	1.047	0.952

Figure C4-3. (Sheet 2)

Subsonic Cruise — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	2601	2840	3100	3385	3699	4049	4410	4787	5252	6396	7927	9769	1.082	0.921
210	2582	2745	2934	3142	3357	3594	3845	4125	4422	5111	5884	6792	1.071	0.940
240	2783	2891	3012	3160	3319	3489	3686	3891	4104	4588	5138	5763	1.060	0.952
270	3110	3187	3278	3379	3489	3608	3751	3903	4065	4437	4850	5312	1.049	0.971
300	3533	3594	3661	3736	3818	3914	4016	4127	4244	4522	4838	5196	1.036	0.983
330	4014	4063	4118	4179	4245	4318	4396	4482	4578	4790	5026	5308	1.027	0.992
360	4562	4601	4645	4694	4748	4808	4872	4942	5017	5181	5373	5586	1.021	1.001
390	5150	5182	5218	5257	5299	5346	5398	5456	5519	5657	5817	6008	1.018	1.015
420	5876	5908	5942	5981	6020	6062	6108	6158	6212	6342	6488	6652	0.998	1.025
450	6750	6777	6813	6853	6896	6942	6986	7027	7071	7169	7290	7437	0.984	1.025
480	7771	7784	7802	7834	7870	7909	7951	7997	8045	8131	8229	8342	0.980	1.029
510	8987	8991	8999	9010	9027	9050	9076	9105	9136	9209	9290	9381	0.970	1.041
540	10,424	10,420	10,419	10,422	10,429	10,436	10,454	10,473	10,495	10,547	10,609	10,687	0.964	1.053
570	12,305	12,302	12,302	12,304	12,309	12,316	12,323	12,334	12,350	12,388	12,434	12,489	0.942	1.125
600	16,380	16,371	16,363	16,357	16,353	16,350	16,349	16,349	16,352	16,370	16,398	16,433	0.852	1.173
630														
660														
MIL	17,381	17,381	17,380	17,380	17,380	17,380	17,380	17,380	17,380	17,380	17,381	17,381	0.853	0.980
VMAX	603	603	603	603	603	603	603	603	603	603	603	602	1.011	0.967
MAX ENDURANCE														
KTAS	197	206	215	223	232	240	248	256	264	277	290	302	1.034	0.965
FUEL FLOW	2551	2739	2928	3117	3304	3488	3674	3860	4047	4431	4813	5195	1.047	0.952
MAX RANGE														
KTAS	259	267	279	290	301	311	322	331	339	359	378	384	1.034	0.965
FUEL FLOW	2978	3152	3386	3610	3832	4048	4277	4492	4701	5173	5619	5910	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	+20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	2677	2917	3177	3463	3779	4132	4496	4879	5346	6501	8060	10,179	1.081	0.922
210	2695	2856	3043	3247	3460	3698	3951	4232	4532	5227	6007	6926	1.069	0.942
240	2938	3044	3164	3310	3465	3634	3829	4031	4243	4730	5285	5914	1.056	0.956
270	3315	3391	3479	3578	3686	3804	3945	4096	4256	4624	5033	5498	1.045	0.974
300	3794	3853	3918	3991	4072	4165	4266	4375	4491	4766	5080	5434	1.031	0.986
330	4340	4389	4442	4500	4564	4634	4710	4794	4889	5097	5331	5609	1.023	0.995
360	4953	4991	5034	5081	5134	5192	5255	5323	5396	5556	5752	5979	1.018	1.004
390	5612	5643	5677	5715	5756	5805	5861	5925	5993	6143	6312	6501	1.014	1.018
420	6485	6517	6553	6593	6633	6674	6719	6767	6820	6947	7093	7258	0.989	1.025
450	7499	7527	7564	7604	7648	7696	7742	7784	7830	7933	8058	8205	0.981	1.030
480	8707	8717	8731	8763	8797	8834	8875	8920	8966	9051	9156	9277	0.977	1.036
510	10,170	10,170	10,174	10,182	10,198	10,221	10,248	10,278	10,311	10,388	10,473	10,571	0.965	1.047
540	11,879	11,869	11,862	11,858	11,858	11,858	11,875	11,892	11,911	11,959	12,017	12,091	0.961	1.056
570	14,117	14,109	14,103	14,100	14,100	14,102	14,105	14,112	14,127	14,163	14,207	14,261	0.938	1.143
600														
630														
660														
MIL	17,392	17,392	17,392	17,392	17,392	17,392	17,392	17,392	17,392	17,392	17,391	17,391	0.845	0.984
VMAX	593	593	593	593	593	593	593	593	593	593	593	593	0.998	0.968
MAX ENDURANCE														
KTAS	196	202	211	220	228	236	243	250	257	269	282	294	1.034	0.965
FUEL FLOW	2647	2843	3043	3241	3436	3632	3828	4025	4224	4624	5028	5430	1.047	0.952
MAX RANGE														
KTAS	254	264	270	281	291	301	311	320	329	346	358	369	1.034	0.965
FUEL FLOW	3096	3316	3485	3720	3951	4182	4411	4644	4871	5326	5717	6119	1.047	0.952

Figure C4-3. (Sheet 3)

Subsonic Cruise — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	13,341	0.959	0.974
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	184	1.053	0.961
180	2993	3252	3540	3858	4214	4582	4970	5441	6606	8193	10,342		1.087	0.923
210	2968	3153	3350	3562	3802	4057	4340	4641	5344	6134	7059	8299	1.071	0.936
240	3198	3315	3457	3612	3779	3972	4172	4381	4872	5432	6065	6853	1.058	0.957
270	3593	3679	3777	3883	3999	4139	4289	4448	4812	5216	5683	6207	1.045	0.972
300	4112	4176	4246	4325	4417	4517	4624	4738	5010	5322	5680	6084	1.031	0.985
330	4714	4765	4821	4883	4951	5025	5106	5199	5405	5637	5926	6249	1.024	0.994
360	5381	5423	5469	5520	5577	5639	5708	5783	5952	6154	6378	6624	1.017	1.004
390	6140	6177	6218	6262	6311	6366	6428	6495	6642	6808	6994	7205	1.006	1.014
420	7138	7174	7213	7253	7293	7338	7386	7439	7572	7724	7894	8082	0.989	1.030
450	8314	8350	8389	8433	8480	8525	8566	8611	8712	8844	8999	9170	0.979	1.036
480	9713	9727	9759	9796	9836	9879	9927	9977	10,065	10,168	10,286	10,438	0.971	1.031
510	11,402	11,401	11,404	11,416	11,438	11,463	11,491	11,522	11,595	11,676	11,770	11,876	0.963	1.051
540	13,350	13,334	13,323	13,315	13,309	13,324	13,341	13,361	13,410	13,470	13,549	13,639	0.963	1.060
570	16,047	16,036	16,027	16,022	16,018	16,016	16,018	16,030	16,058	16,096	16,143	16,199	0.963	1.069
600														
630														
660														
MIL	17,372	17,372	17,372	17,372	17,372	17,372	17,372	17,372	17,372	17,372	17,371	17,371	0.842	0.990
VMAX	583	583	583	583	583	583	583	583	583	582	582	582	0.975	0.969
MAX ENDURANCE														
KTAS	198	200	208	216	223	230	237	244	256	269	280	290	1.034	0.965
FUEL FLOW	2941	3147	3350	3554	3759	3964	4171	4378	4795	5216	5641	6070	1.047	0.952
MAX RANGE														
KTAS	257	265	272	282	291	300	309	318	334	344	357	369	1.034	0.965
FUEL FLOW	3407	3602	3798	4041	4279	4518	4754	4995	5477	5856	6321	6784	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	13,349	0.959	0.974
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	185	1.053	0.961
180	3069	3328	3618	3938	4296	4667	5061	5535	6711	8325	10,504		1.085	0.924
210	3079	3259	3454	3664	3906	4163	4447	4750	5460	6263	7192	8466	1.069	0.938
240	3350	3464	3605	3758	3924	4115	4312	4519	5013	5579	6215	7022	1.055	0.960
270	3795	3880	3975	4080	4194	4333	4482	4640	5000	5401	5868	6396	1.041	0.975
300	4371	4433	4502	4578	4669	4767	4873	4986	5255	5567	5925	6326	1.028	0.987
330	5039	5088	5142	5202	5268	5339	5418	5510	5718	5956	6242	6562	1.022	0.996
360	5779	5823	5872	5926	5985	6048	6118	6192	6357	6556	6778	7022	1.011	1.004
390	6652	6688	6727	6770	6818	6871	6932	6997	7141	7314	7512	7736	1.004	1.021
420	7788	7824	7864	7904	7946	7991	8040	8094	8225	8374	8545	8736	0.984	1.032
450	9136	9173	9214	9260	9309	9356	9399	9446	9551	9683	9838	10,010	0.974	1.040
480	10,744	10,755	10,786	10,821	10,859	10,901	10,947	10,995	11,081	11,180	11,295	11,445	0.966	1.041
510	12,634	12,628	12,626	12,635	12,655	12,678	12,704	12,733	12,809	12,896	12,997	13,112	0.966	1.055
540	14,973	14,950	14,932	14,917	14,902	14,916	14,930	14,948	14,992	15,047	15,121	15,207	0.955	1.063
570														
600														
630														
660														
MIL	17,342	17,343	17,343	17,343	17,343	17,344	17,344	17,343	17,343	17,342	17,342	17,341	0.843	0.996
VMAX	567	567	567	567	567	567	567	567	567	567	566	566	0.962	0.975
MAX ENDURANCE														
KTAS	192	198	204	212	220	227	234	240	253	266	277	289	1.034	0.965
FUEL FLOW	3034	3238	3448	3660	3873	4088	4303	4519	4953	5393	5838	6287	1.047	0.952
MAX RANGE														
KTAS	249	258	265	273	282	291	300	308	322	333	346	358	1.034	0.965
FUEL FLOW	3473	3693	3894	4128	4375	4621	4873	5118	5573	6012	6499	6985	1.047	0.952

Figure C4-3. (Sheet 4)

Subsonic Cruise — Sea Level

DATA BASIS ESTIMATED | **CONDITIONS:** | **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 300	MIL		––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	13,356	0.959	0.975
	VMIN		–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	185	1.055	0.961
	180		3404	3695	4017	4379	4755	5152	5629	6815	8457	10,665		1.096	0.925
	210		3365	3558	3766	4010	4269	4554	4860	5577	6391	7325	8633	1.073	0.937
	240		3613	3753	3905	4070	4258	4453	4657	5157	5726	6375	7191	1.058	0.961
	270		4080	4174	4277	4390	4527	4675	4832	5188	5586	6053	6598	1.041	0.975
	300		4690	4757	4832	4921	5017	5121	5233	5500	5816	6171	6569	1.029	0.987
	330		5412	5463	5521	5584	5655	5735	5831	6040	6276	6559	6876	1.020	0.996
	360		6243	6291	6343	6400	6462	6529	6602	6763	6959	7187	7451	1.008	1.010
	390		7200	7241	7286	7336	7392	7456	7525	7678	7852	8047	8268	1.000	1.023
	420		8491	8531	8571	8612	8658	8707	8762	8893	9044	9214	9418	0.983	1.039
	450		10,035	10,076	10,122	10,171	10,218	10,261	10,307	10,412	10,541	10,692	10,861	0.967	1.040
	480		11,783	11,812	11,845	11,882	11,923	11,967	12,014	12,097	12,193	12,304	12,459	0.971	1.049
	510		13,994	13,985	13,992	14,012	14,036	14,063	14,094	14,167	14,250	14,346	14,456	0.960	1.054
	540		16,566	16,540	16,518	16,496	16,507	16,519	16,535	16,574	16,625	16,694	16,776	0.949	1.059
	570														
	600														
	630														
	660														
	MIL		17,248	17,250	17,252	17,253	17,253	17,253	17,252	17,249	17,246	17,242	17,236	0.845	1.011
	VMAX		548	548	548	548	548	548	548	548	547	546	546	0.957	0.983
	MAX ENDURANCE														
	KTAS		196	204	212	219	226	233	240	253	265	277	288	1.034	0.965
	FUEL FLOW		3327	3543	3764	3986	4209	4432	4657	5109	5568	6033	6503	1.047	0.952
	MAX RANGE														
	KTAS		251	259	266	275	283	292	300	313	326	341	353	1.034	0.965
	FUEL FLOW		3767	3999	4206	4461	4718	4974	5229	5701	6200	6744	7292	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 350	MIL			––––	––––	––––	––––	––––	––––	––––	––––	––––	13,364	0.959	0.975
	VMIN			–––	–––	–––	–––	–––	–––	–––	–––	–––	186	1.057	0.961
	180			3773	4096	4461	4843	5243	5722	6920	8588	10,825		1.098	0.919
	210			3662	3868	4114	4374	4661	4971	5693	6520	7458	8798	1.075	0.937
	240			3900	4051	4215	4401	4594	4795	5301	5873	6539	7359	1.058	0.959
	270			4373	4474	4585	4721	4868	5024	5378	5771	6238	6808	1.041	0.976
	300			5013	5085	5173	5267	5370	5481	5752	6065	6417	6823	1.029	0.988
	330			5793	5851	5915	5985	6063	6156	6363	6596	6876	7218	1.017	1.000
	360			6710	6760	6815	6875	6940	7011	7177	7389	7626	7887	1.005	1.015
	390			7793	7837	7885	7940	8002	8070	8220	8390	8581	8800	0.996	1.026
	420			9217	9259	9302	9350	9403	9460	9600	9761	9942	10,142	0.978	1.041
	450			10,947	10,991	11,038	11,084	11,126	11,171	11,272	11,398	11,546	11,711	0.969	1.041
	480			12,899	12,935	12,975	13,019	13,067	13,119	13,209	13,314	13,436	13,600	0.969	1.049
	510			15,360	15,364	15,382	15,403	15,428	15,456	15,525	15,604	15,695	15,801	0.956	1.056
	540														
	570														
	600														
	630														
	660														
	MIL			17,133	17,136	17,137	17,136	17,134	17,132	17,127	17,119	17,108	17,094	0.848	1.033
	VMAX			529	529	529	529	529	529	528	528	527	525	0.957	0.992
	MAX ENDURANCE														
	KTAS			204	211	219	225	232	239	253	265	276	287	1.034	0.965
	FUEL FLOW			3639	3868	4098	4329	4561	4795	5266	5743	6228	6730	1.047	0.952
	MAX RANGE														
	KTAS			253	261	269	279	287	296	310	326	335	345	1.034	0.965
	FUEL FLOW			4072	4322	4574	4850	5126	5402	5923	6499	6971	7512	1.047	0.952

Figure C4-3. (Sheet 5)

Subsonic Cruise — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
MIL			––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	––– –	13,371	0.959	0.975
VMIN			–––	–––	–––	–––	–––	–––	–––	–––	–––	187	1.059	0.961
180			3850	4175	4543	4930	5334	5815	7024	8718	10,982		1.097	0.921
210			3765	3970	4218	4480	4769	5082	5809	6648	7601	8964	1.073	0.939
240			4048	4198	4361	4544	4735	4934	5444	6020	6702	7527	1.056	0.961
270			4571	4671	4780	4915	5061	5216	5568	5957	6423	7019	1.039	0.978
300			5268	5339	5425	5520	5624	5735	6004	6315	6665	7093	1.026	0.992
330			6130	6185	6247	6315	6390	6482	6686	6916	7220	7567	1.014	1.006
360			7134	7187	7245	7309	7379	7454	7622	7831	8065	8323	0.998	1.017
390			8345	8388	8435	8488	8549	8614	8761	8930	9142	9387	0.995	1.033
420			9963	10,004	10,045	10,092	10,143	10,198	10,335	10,492	10,669	10,866	0.970	1.040
450			11,817	11,860	11,906	11,951	11,990	12,034	12,139	12,274	12,435	12,615	0.973	1.049
480			14,063	14,097	14,135	14,177	14,224	14,274	14,360	14,462	14,581	14,741	0.963	1.051
510			16,735	16,735	16,751	16,770	16,793						0.946	1.062
540														
570														
600														
630														
660														
MIL			16,941	16,942	16,940	16,937	16,934	16,930	16,921	16,910	16,897	16,881	0.855	1.060
VMAX			511	511	511	511	511	510	510	509	507	506	0.958	1.001
MAX ENDURANCE														
KTAS			203	210	218	225	232	239	252	264	274	287	1.034	0.965
FUEL FLOW			3733	3970	4209	4448	4689	4932	5423	5918	6420	6967	1.047	0.952
MAX RANGE														
KTAS			250	260	269	278	286	293	308	320	326	337	1.034	0.965
FUEL FLOW			4198	4477	4763	5047	5329	5593	6150	6682	7127	7719	1.047	0.952

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure C4-3. (Sheet 6)

Subsonic Cruise — 4000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	2422	2687	2977	3305	3655	4019	4465	4969	5631	6346	7187	9609	1.109	0.912
210	2264	2466	2680	2905	3146	3415	3706	4027	4386	4762	5162	6145	1.085	0.927
240	2304	2436	2589	2756	2950	3157	3372	3603	3847	4110	4404	5058	1.076	0.942
270	2471	2568	2676	2794	2931	3082	3244	3422	3624	3831	4045	4520	1.066	0.959
300	2725	2798	2879	2972	3075	3186	3305	3440	3589	3746	3913	4290	1.051	0.974
330	3022	3083	3150	3224	3304	3391	3489	3594	3706	3824	3951	4249	1.040	0.984
360	3378	3425	3478	3540	3607	3679	3757	3840	3930	4028	4131	4354	1.030	0.990
390	3765	3804	3847	3895	3947	4008	4074	4145	4220	4300	4385	4570	1.025	1.000
420	4241	4276	4313	4351	4392	4438	4488	4547	4610	4678	4750	4908	1.013	1.008
450	4747	4776	4808	4844	4882	4918	4958	5001	5047	5101	5162	5296	1.008	1.016
480	5347	5367	5390	5416	5446	5479	5515	5551	5590	5632	5677	5783	1.000	1.025
510	6032	6047	6063	6082	6103	6127	6154	6184	6220	6262	6306	6404	0.988	1.036
540	6879	6891	6905	6921	6939	6958	6979	7003	7029	7058	7091	7167	0.969	1.051
570	8068	8077	8088	8101	8116	8133	8153	8175	8199	8225	8253	8315	0.935	1.130
600	10,740	10,749	10,759	10,771	10,785	10,801	10,819	10,839	10,861	10,886	10,912	10,970	0.836	1.302
630														
660														
MIL	16,292	16,291	16,290	16,289	16,288	16,287	16,285	16,284	16,282	16,281	16,279	16,276	0.841	1.063
VMAX	630	630	629	629	629	629	629	629	629	628	628	628	1.011	0.974
MAX ENDURANCE														
KTAS	216	227	238	248	257	261	270	278	287	296	304	320	1.035	0.964
FUEL FLOW	2261	2426	2589	2752	2913	3076	3244	3412	3579	3745	3911	4243	1.048	0.951
MAX RANGE														
KTAS	297	313	326	328	343	357	372	385	391	391	391	410	1.035	0.964
FUEL FLOW	2699	2917	3109	3201	3428	3653	3875	4093	4234	4314	4399	4790	1.048	0.951

*TEMPERATURE DEVIATION FROM STANDARD DAY. –––VMIN LESS THAN 180 KTAS.

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––		
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––		
180	2490	2755	3046	3377	3730	4099	4549	5062	5728	6452	7303	9731	1.108	0.914
210	2362	2561	2771	2997	3239	3509	3802	4127	4490	4870	5279	6270	1.083	0.929
240	2439	2570	2721	2886	3077	3281	3494	3726	3972	4237	4536	5195	1.072	0.947
270	2649	2745	2851	2967	3102	3252	3413	3589	3789	3994	4205	4688	1.061	0.964
300	2952	3024	3103	3194	3295	3405	3523	3656	3803	3960	4125	4499	1.046	0.978
330	3307	3366	3431	3503	3581	3666	3763	3866	3976	4094	4218	4514	1.035	0.988
360	3724	3770	3822	3881	3946	4017	4093	4175	4263	4359	4461	4682	1.025	0.994
390	4177	4215	4257	4303	4354	4414	4478	4548	4622	4700	4784	4967	1.019	1.005
420	4732	4765	4801	4838	4879	4923	4971	5029	5091	5158	5228	5386	1.008	1.013
450	5325	5353	5384	5419	5456	5491	5530	5572	5617	5672	5737	5887	1.008	1.023
480	6049	6069	6095	6124	6156	6192	6233	6273	6317	6364	6414	6533	0.996	1.026
510	6944	6957	6971	6989	7011	7035	7062	7092	7126	7166	7208	7303	0.978	1.036
540	7988	7994	8004	8016	8033	8052	8074	8098	8126	8155	8190	8271	0.967	1.062
570	9512	9519	9528	9539	9552	9568	9587	9607	9630	9655	9682	9742	0.927	1.163
600	13,189	13,186	13,184	13,185	13,187	13,191	13,197	13,211	13,231	13,255	13,280	13,338	0.817	1.224
630														
660														
MIL	16,132	16,132	16,132	16,132	16,131	16,131	16,130	16,130	16,129	16,128	16,127	16,125	0.846	1.078
VMAX	612	612	612	612	612	612	612	612	612	612	611	611	1.013	0.975
MAX ENDURANCE														
KTAS	209	220	230	239	249	257	264	273	281	289	296	311	1.035	0.964
FUEL FLOW	2362	2537	2712	2885	3058	3231	3406	3586	3765	3943	4122	4478	1.048	0.951
MAX RANGE														
KTAS	279	293	306	318	326	334	347	360	372	384	391	392	1.035	0.964
FUEL FLOW	2739	2955	3168	3374	3538	3712	3942	4173	4399	4624	4799	4983	1.048	0.951

Figure C4-3. (Sheet 7)

Subsonic Cruise — 4000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	----	----	----	----	----	----	----	----	----	----	----	11,454	0.993	0.961
VMIN	---	---	---	---	---	---	---	---	---	---	---	189	1.045	0.963
180	2559	2823	3115	3449	3805	4179	4632	5156	5824	7420	9862		1.105	0.920
210	2460	2657	2862	3088	3332	3604	3898	4227	4593	5395	6395	7735	1.085	0.930
240	2574	2703	2853	3015	3203	3405	3615	3850	4098	4669	5333	6134	1.071	0.949
270	2828	2922	3025	3140	3273	3422	3582	3757	3954	4365	4857	5405	1.059	0.966
300	3180	3250	3327	3416	3516	3624	3740	3872	4018	4337	4714	5131	1.044	0.980
330	3593	3650	3713	3782	3858	3941	4036	4138	4247	4486	4783	5121	1.031	0.990
360	4069	4114	4165	4223	4286	4355	4429	4509	4596	4791	5016	5273	1.021	0.997
390	4589	4625	4666	4711	4761	4819	4882	4950	5023	5187	5377	5590	1.016	1.009
420	5223	5255	5290	5326	5367	5411	5461	5520	5587	5735	5904	6092	1.008	1.017
450	5936	5966	6001	6039	6081	6120	6163	6210	6260	6387	6534	6700	1.001	1.024
480	6834	6852	6876	6904	6935	6970	7009	7048	7090	7184	7310	7468	0.987	1.034
510	7917	7925	7937	7956	7977	8002	8030	8062	8098	8186	8288	8406	0.971	1.043
540	9197	9197	9201	9207	9222	9240	9260	9284	9310	9375	9459	9556	0.965	1.070
570	11,094	11,097	11,103	11,112	11,122	11,135	11,150	11,167	11,186	11,231	11,285	11,356	0.919	1.185
600														
630														
660														
MIL	16,020	16,020	16,021	16,021	16,021	16,022	16,022	16,022	16,021	16,020	16,018	16,016	0.850	1.096
VMAX	599	599	599	599	599	599	599	599	599	599	599	599	1.015	0.975
MAX ENDURANCE														
KTAS	209	219	228	237	247	255	263	270	278	293	307	320	1.035	0.964
FUEL FLOW	2458	2645	2829	3012	3195	3379	3566	3756	3946	4325	4709	5102	1.048	0.951
MAX RANGE														
KTAS	271	284	296	307	319	326	337	348	358	378	391	391	1.035	0.964
FUEL FLOW	2833	3059	3280	3495	3722	3896	4115	4347	4569	5017	5393	5607	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **---VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	+20°C	−20°C
MIL	----	----	----	----	----	----	----	----	----	----	----	11,461	0.993	0.961
VMIN	---	---	---	---	---	---	---	---	---	---	---	190	1.045	0.963
180	2626	2891	3184	3520	3880	4258	4715	5250	5921	7538	9999		1.104	0.921
210	2557	2751	2953	3179	3425	3698	3994	4328	4697	5511	6527	7880	1.083	0.932
240	2708	2835	2983	3144	3329	3529	3737	3974	4223	4801	5475	6285	1.069	0.953
270	3005	3097	3200	3312	3444	3592	3751	3924	4119	4530	5026	5580	1.055	0.969
300	3408	3476	3551	3639	3737	3843	3958	4088	4233	4550	4932	5347	1.039	0.984
330	3879	3934	3994	4061	4135	4216	4310	4410	4518	4757	5062	5397	1.026	0.993
360	4415	4459	4508	4564	4626	4693	4766	4844	4931	5133	5360	5618	1.018	1.001
390	5000	5036	5075	5120	5171	5231	5296	5366	5441	5608	5799	6013	1.014	1.013
420	5742	5776	5814	5852	5894	5941	5992	6053	6119	6266	6432	6627	1.001	1.021
450	6599	6628	6662	6699	6740	6778	6820	6866	6916	7046	7206	7386	0.992	1.031
480	7664	7681	7706	7735	7768	7805	7847	7889	7934	8035	8162	8317	0.975	1.038
510	8949	8952	8960	8976	8996	9019	9047	9078	9115	9206	9314	9442	0.970	1.051
540	10,509	10,503	10,501	10,500	10,512	10,529	10,548	10,571	10,597	10,658	10,740	10,834	0.958	1.074
570	12,723	12,723	12,726	12,731	12,739	12,749	12,761	12,776	12,794	12,835	12,887	12,957	0.917	1.207
600														
630														
660														
MIL	15,937	15,937	15,938	15,938	15,938	15,938	15,938	15,938	15,938	15,937	15,937	15,936	0.850	1.109
VMAX	590	590	590	590	590	590	590	590	590	590	590	590	1.009	0.976
MAX ENDURANCE														
KTAS	205	215	224	233	241	250	257	263	271	285	298	303	1.035	0.964
FUEL FLOW	2553	2749	2942	3135	3329	3524	3720	3918	4118	4519	4932	5345	1.048	0.951
MAX RANGE														
KTAS	262	275	287	298	309	319	326	334	344	360	376	391	1.035	0.964
FUEL FLOW	2918	3149	3383	3611	3840	4065	4258	4468	4702	5133	5586	6034	1.048	0.951

Figure C4-3. (Sheet 8)

Subsonic Cruise — 4000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
		22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
DRAG INDEX = 200	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	11,468	11,614	0.992	0.961
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	191	204	1.050	0.962
	180	2958	3252	3592	3955	4338	4798	5343	6017	7654	10,140			1.106	0.915
	210	2844	3043	3270	3518	3793	4090	4429	4801	5627	6660	8025	9904	1.086	0.926
	240	2966	3113	3272	3456	3653	3859	4097	4352	4934	5617	6436	7420	1.070	0.946
	270	3273	3374	3485	3615	3762	3919	4091	4283	4695	5195	5758	6415	1.058	0.965
	300	3702	3775	3861	3957	4062	4175	4304	4448	4771	5151	5563	6044	1.041	0.980
	330	4217	4276	4341	4412	4491	4583	4683	4793	5038	5341	5676	6059	1.027	0.993
	360	4804	4852	4908	4970	5038	5113	5193	5280	5482	5710	5965	6288	1.017	1.003
	390	5464	5504	5550	5600	5660	5725	5795	5871	6036	6226	6457	6711	1.011	1.015
	420	6319	6356	6392	6434	6481	6533	6596	6664	6818	6999	7199	7425	0.996	1.024
	450	7326	7361	7401	7444	7485	7530	7579	7632	7766	7922	8099	8297	0.981	1.034
	480	8550	8573	8601	8632	8668	8708	8748	8792	8898	9033	9204	9393	0.976	1.046
	510	10,080	10,083	10,099	10,119	10,142	10,169	10,200	10,236	10,325	10,429	10,552	10,721	0.962	1.050
	540	11,820	11,811	11,803	11,811	11,826	11,843	11,864	11,887	11,947	12,029	12,124	12,235	0.961	1.079
	570	14,522	14,521	14,522	14,526	14,533	14,541	14,552	14,566	14,600	14,644	14,707	14,781	0.907	1.100
	600														
	630														
	660														
	MIL	15,873	15,873	15,873	15,873	15,873	15,873	15,873	15,873	15,872	15,871	15,870	15,869	0.846	1.120
	VMAX	580	580	580	580	580	580	580	580	580	580	580	579	0.992	0.979
	MAX ENDURANCE														
	KTAS	203	212	221	229	237	244	251	258	272	284	296	308	1.035	0.964
	FUEL FLOW	2841	3043	3244	3447	3651	3856	4062	4269	4695	5126	5560	6008	1.048	0.951
	MAX RANGE														
	KTAS	265	277	287	298	308	318	326	330	348	364	374	386	1.035	0.964
	FUEL FLOW	3217	3457	3691	3929	4162	4400	4625	4790	5297	5769	6166	6637	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
DRAG INDEX = 250	**MIL**	––––	––––	––––	––––	––––	––––	––––	––––	––––	––––	11,475	11,626	0.992	0.961
	VMIN	–––	–––	–––	–––	–––	–––	–––	–––	–––	–––	191	205	1.050	0.962
	180	3025	3321	3663	4031	4417	4881	5436	6114	7771	10,277			1.106	0.917
	210	2937	3133	3361	3611	3887	4189	4529	4905	5743	6793	8170	10,083	1.084	0.928
	240	3097	3242	3401	3582	3777	3981	4220	4481	5067	5759	6586	7593	1.068	0.947
	270	3449	3548	3657	3786	3932	4088	4258	4450	4862	5364	5936	6600	1.055	0.969
	300	3928	3999	4083	4178	4281	4393	4520	4667	4993	5370	5783	6267	1.038	0.984
	330	4501	4558	4620	4690	4769	4865	4968	5078	5320	5622	5960	6347	1.023	0.996
	360	5161	5211	5266	5327	5394	5468	5547	5634	5835	6062	6331	6656	1.013	1.006
	390	5904	5944	5988	6037	6096	6159	6229	6310	6488	6692	6921	7176	1.007	1.021
	420	6891	6929	6969	7013	7061	7114	7178	7249	7405	7584	7783	8006	0.986	1.029
	450	8058	8092	8131	8173	8212	8256	8304	8356	8490	8647	8835	9052	0.980	1.040
	480	9485	9509	9538	9572	9609	9652	9696	9743	9849	9983	10,152	10,339	0.967	1.044
	510	11,221	11,219	11,233	11,250	11,272	11,297	11,325	11,359	11,444	11,543	11,662	11,831	0.963	1.053
	540	13,251	13,233	13,218	13,222	13,236	13,253	13,274	13,297	13,356	13,437	13,532	13,640	0.955	1.081
	570														
	600														
	630														
	660														
	MIL	15,810	15,810	15,811	15,811	15,810	15,810	15,810	15,809	15,807	15,804	15,800	15,794	0.843	1.126
	VMAX	570	570	570	570	570	570	570	569	569	569	568	567	0.971	0.984
	MAX ENDURANCE														
	KTAS	199	208	217	225	233	240	248	255	269	282	294	306	1.035	0.964
	FUEL FLOW	2923	3133	3343	3554	3767	3981	4195	4413	4860	5311	5771	6243	1.048	0.951
	MAX RANGE														
	KTAS	261	269	279	289	299	308	313	322	337	352	362	376	1.035	0.964
	FUEL FLOW	3324	3529	3776	4021	4264	4507	4695	4944	5428	5918	6367	6900	1.048	0.951

Figure C4-3. (Sheet 9)

–Subsonic Cruise — 4000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• **STANDARD DAY TEMPERATURE (7°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	–20°C
MIL		––––	––––	––––	––––	––––	––––	––––	––––	––––	11,484	11,638	0.991	0.961
VMIN		–––	–––	–––	–––	–––	–––	–––	–––	–––	192	206	1.050	0.962
180		3390	3735	4108	4497	4967	5529	6211	7888	10,409			1.116	0.903
210		3224	3452	3704	3981	4287	4629	5009	5858	6926	8314	10,263	1.085	0.926
240		3372	3529	3708	3901	4102	4347	4610	5199	5900	6746	7765	1.068	0.948
270		3722	3829	3957	4102	4257	4426	4620	5028	5534	6113	6786	1.051	0.968
300		4223	4305	4399	4500	4613	4744	4892	5215	5589	6007	6490	1.035	0.983
330		4846	4910	4981	5059	5153	5254	5363	5604	5907	6251	6635	1.020	0.998
360		5574	5628	5689	5755	5827	5904	5990	6197	6435	6702	7028	1.012	1.008
390		6399	6446	6499	6561	6629	6703	6783	6958	7162	7391	7644	1.000	1.025
420		7529	7567	7610	7657	7710	7773	7842	7995	8180	8390	8634	0.984	1.033
450		8848	8889	8934	8977	9024	9076	9132	9274	9441	9632	9846	0.975	1.040
480		10,477	10,504	10,536	10,572	10,613	10,655	10,700	10,803	10,934	11,100	11,284	0.965	1.047
510		12,385	12,398	12,414	12,435	12,459	12,487	12,521	12,607	12,711	12,836	13,019	0.961	1.055
540		14,691	14,668	14,669	14,680	14,695	14,713	14,734	14,788	14,864	14,954	15,057	0.932	1.093
570														
600														
630														
660														
MIL		15,684	15,686	15,688	15,687	15,686	15,685	15,683	15,680	15,675	15,668	15,660	0.845	1.135
VMAX		552	553	553	553	553	552	552	552	551	550	549	0.964	1.000
MAX ENDURANCE														
KTAS		208	216	225	232	240	247	255	268	281	293	305	1.035	0.964
FUEL FLOW		3220	3439	3659	3880	4102	4327	4557	5023	5494	5981	6475	1.048	0.951
MAX RANGE														
KTAS		261	271	281	290	297	306	315	330	346	361	375	1.035	0.964
FUEL FLOW		3595	3847	4102	4352	4560	4830	5091	5605	6153	6721	7300	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	–20°C
MIL			––––	––––	––––	––––	––––	––––	––––	11,355	11,495	11,650	0.994	0.961
VMIN			–––	–––	–––	–––	–––	–––	–––	180	193	207	1.050	0.962
180			3806	4184	4576	5054	5622	6313	8007				1.112	0.906
210			3543	3796	4076	4386	4730	5115	5974	7058	8474	10,447	1.083	0.925
240			3658	3835	4026	4224	4474	4738	5334	6041	6912	7940	1.069	0.949
270			4002	4128	4272	4426	4599	4791	5194	5708	6291	6985	1.047	0.970
300			4527	4622	4727	4840	4969	5116	5438	5815	6231	6717	1.033	0.985
330			5204	5273	5348	5442	5543	5651	5892	6201	6542	6926	1.018	1.000
360			5994	6054	6121	6196	6277	6366	6575	6810	7077	7404	1.009	1.012
390			6926	6978	7040	7108	7181	7260	7435	7636	7874	8153	0.996	1.029
420			8177	8222	8271	8326	8391	8464	8631	8823	9038	9286	0.982	1.037
450			9704	9748	9789	9835	9885	9940	10,078	10,242	10,429	10,639	0.970	1.042
480			11,470	11,500	11,534	11,574	11,614	11,657	11,759	11,894	12,069	12,263	0.967	1.052
510			13,632	13,646	13,665	13,687	13,714	13,746	13,829	13,929	14,049	14,231	0.956	1.058
540														
570														
600														
630														
660														
MIL			15,566	15,566	15,565	15,564	15,562	15,560	15,555	15,548	15,539	15,528	0.848	1.142
VMAX			536	536	535	535	535	535	534	533	532	530	0.960	1.009
MAX ENDURANCE														
KTAS			216	224	232	239	247	254	268	280	293	305	1.035	0.964
FUEL FLOW			3535	3763	3993	4224	4461	4701	5186	5681	6191	6709	1.048	0.951
MAX RANGE														
KTAS			266	277	286	295	303	312	329	342	353	362	1.035	0.964
FUEL FLOW			3943	4216	4489	4753	5019	5304	5866	6407	6934	7443	1.048	0.951

Figure C4-3. (Sheet 10)

Subsonic Cruise — 4000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (7°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 400	**MIL**			––––	––––	––––	––––	––––	––––	––––	11,362	11,506	11,662	0.994	0.961
	VMIN			–––	–––	–––	–––	–––	–––	–––	181	194	208	1.050	0.962
	180			3877	4260	4656	5141	5715	6414	8127				1.111	0.907
	210			3634	3889	4172	4484	4830	5224	6091	7190	8642	10,632	1.081	0.926
	240			3787	3962	4150	4349	4600	4867	5472	6184	7078	8116	1.067	0.951
	270			4175	4299	4443	4601	4773	4962	5361	5882	6472	7194	1.043	0.973
	300			4758	4853	4956	5068	5195	5341	5662	6043	6455	6944	1.030	0.987
	330			5500	5567	5640	5733	5833	5943	6189	6495	6835	7220	1.016	1.004
	360			6380	6440	6507	6580	6659	6746	6954	7190	7459	7813	1.005	1.017
	390			7414	7464	7524	7591	7663	7740	7929	8150	8400	8677	0.996	1.033
	420			8836	8880	8930	8985	9052	9127	9293	9484	9698	9943	0.975	1.038
	450			10,520	10,562	10,602	10,646	10,695	10,748	10,883	11,045	11,230	11,438	0.970	1.046
	480			12,489	12,519	12,555	12,596	12,638	12,683	12,788	12,924	13,100	13,296	0.962	1.054
	510			14,870	14,882	14,898	14,919	14,943	14,972	15,051	15,146	15,261	15,442	0.942	1.071
	540														
	570														
	600														
	630														
	660														
	MIL			15,450	15,450	15,449	15,448	15,446	15,445	15,439	15,432	15,424	15,409	0.852	1.131
	VMAX			519	519	519	519	518	518	517	516	514	512	0.959	1.010
	MAX ENDURANCE														
	KTAS			215	223	231	239	247	253	267	279	291	302	1.035	0.964
	FUEL FLOW			3630	3867	4105	4347	4595	4844	5348	5868	6399	6944	1.048	0.951
	MAX RANGE														
	KTAS			266	276	284	293	301	308	320	334	345	351	1.035	0.964
	FUEL FLOW			4104	4385	4648	4943	5220	5485	5998	6568	7115	7605	1.048	0.951

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure C4-3. (Sheet 11)

Subsonic Cruise — 8000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	MIL	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	9932	10,051	1.023	0.953
	VMIN	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	180	193	1.040	0.963
	180	2435	2734	3072	3424	3845	4348	5007	5742	6630	7575			1.125	0.898
	210	2224	2440	2672	2927	3212	3528	3885	4269	4683	5176	5736	7196	1.096	0.913
	240	2181	2337	2516	2722	2934	3164	3410	3679	3979	4300	4668	5501	1.080	0.932
	270	2286	2397	2522	2670	2830	3007	3209	3417	3635	3872	4125	4698	1.076	0.946
	300	2480	2564	2662	2769	2886	3018	3167	3325	3494	3681	3881	4304	1.061	0.964
	330	2727	2796	2872	2956	3051	3153	3264	3382	3513	3660	3815	4153	1.046	0.979
	360	3022	3078	3141	3211	3287	3370	3459	3557	3660	3771	3887	4155	1.037	0.986
	390	3357	3402	3451	3509	3573	3643	3718	3799	3885	3977	4075	4286	1.027	0.997
	420	3767	3804	3843	3887	3934	3992	4057	4125	4199	4278	4363	4545	1.018	1.001
	450	4204	4236	4272	4308	4346	4388	4434	4490	4553	4621	4692	4851	1.013	1.015
	480	4740	4762	4788	4818	4852	4889	4929	4972	5018	5070	5132	5271	1.000	1.021
	510	5352	5369	5386	5407	5430	5457	5488	5526	5567	5614	5664	5783	0.995	1.034
	540	6088	6103	6120	6138	6159	6182	6208	6237	6269	6306	6345	6432	0.977	1.068
	570	7268	7277	7289	7302	7319	7338	7359	7383	7409	7438	7470	7546	0.930	1.207
	600	10,314	10,328	10,345	10,363	10,384	10,407	10,431	10,458	10,487	10,518	10,551	10,627	0.783	1.294
	630														
	660														
	MIL	15,031	15,029	15,028	15,026	15,024	15,022	15,019	15,017	15,015	15,013	15,010	15,005	0.835	1.144
	VMAX	628	628	628	628	628	628	627	627	627	627	627	626	1.012	0.980
	MAX ENDURANCE														
	KTAS	230	242	253	258	269	280	290	300	310	319	324	344	1.036	0.963
	FUEL FLOW	2175	2336	2498	2663	2830	2997	3162	3325	3488	3650	3813	4141	1.049	0.949
	MAX RANGE														
	KTAS	319	322	338	355	370	385	386	386	393	407	421	450	1.036	0.963
	FUEL FLOW	2627	2727	2943	3162	3379	3594	3674	3757	3909	4140	4370	4852	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
DRAG INDEX = 50	MIL	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	9935	10,057	1.023	0.954
	VMIN	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	180	194	1.040	0.963
	180	2495	2795	3137	3491	3919	4428	5095	5840	6740	7696			1.124	0.900
	210	2307	2520	2753	3010	3296	3614	3978	4366	4787	5285	5852	7332	1.093	0.915
	240	2297	2453	2630	2833	3043	3274	3522	3794	4096	4421	4796	5639	1.077	0.934
	270	2441	2551	2675	2822	2981	3156	3356	3561	3778	4019	4275	4858	1.070	0.950
	300	2678	2761	2857	2963	3079	3209	3357	3514	3681	3867	4070	4492	1.055	0.968
	330	2975	3042	3117	3198	3291	3393	3502	3619	3748	3894	4049	4393	1.040	0.983
	360	3325	3379	3441	3509	3584	3665	3752	3849	3951	4060	4176	4452	1.031	0.990
	390	3721	3764	3811	3868	3931	3999	4073	4153	4237	4328	4428	4650	1.021	1.002
	420	4203	4239	4277	4319	4366	4423	4486	4553	4627	4708	4797	4989	1.012	1.007
	450	4721	4752	4787	4822	4860	4903	4951	5010	5077	5148	5223	5392	1.009	1.022
	480	5364	5386	5412	5442	5477	5514	5555	5600	5650	5707	5774	5921	0.998	1.030
	510	6135	6150	6168	6189	6213	6241	6274	6314	6358	6405	6456	6578	0.985	1.039
	540	7052	7063	7076	7094	7114	7137	7164	7194	7228	7267	7309	7402	0.969	1.082
	570	8607	8615	8625	8637	8651	8668	8687	8708	8731	8756	8785	8854	0.914	1.248
	600	12,788	12,792	12,797	12,806	12,817	12,833	12,856	12,882	12,911	12,942	12,975	13,052	0.763	1.325
	630														
	660														
	MIL	14,834	14,834	14,833	14,833	14,832	14,832	14,831	14,830	14,829	14,828	14,827	14,825	0.842	1.129
	VMAX	610	610	610	610	610	610	610	610	610	610	609	609	1.013	0.977
	MAX ENDURANCE														
	KTAS	223	234	245	254	263	272	282	291	299	308	316	329	1.036	0.963
	FUEL FLOW	2277	2450	2623	2797	2974	3153	3330	3506	3681	3855	4031	4393	1.049	0.949
	MAX RANGE														
	KTAS	299	314	321	331	345	360	373	386	386	386	391	412	1.036	0.963
	FUEL FLOW	2666	2882	3032	3209	3434	3660	3883	4100	4187	4281	4436	4895	1.049	0.949

Figure C4-3. (Sheet 12)

Subsonic Cruise — 8000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (−1°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	MIL	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	9939	10,062	10,179	1.021	0.954
	VMIN	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	181	194	209	1.040	0.963
	180	2554	2856	3201	3560	3993	4510	5182	5938	6849				1.110	0.910
	210	2390	2600	2834	3093	3381	3703	4071	4463	4891	5972	7476	9598	1.091	0.915
	240	2415	2569	2743	2944	3151	3384	3634	3909	4216	4925	5777	6775	1.077	0.934
	270	2597	2706	2828	2974	3132	3305	3503	3706	3923	4427	5020	5709	1.064	0.950
	300	2877	2958	3053	3157	3271	3400	3547	3703	3868	4259	4682	5202	1.051	0.969
	330	3224	3289	3361	3440	3532	3632	3740	3855	3983	4290	4635	5039	1.037	0.985
	360	3628	3681	3741	3808	3880	3959	4046	4141	4244	4477	4754	5080	1.027	0.993
	390	4084	4125	4172	4227	4289	4356	4432	4514	4603	4799	5023	5272	1.018	1.007
	420	4642	4677	4717	4761	4809	4869	4934	5005	5081	5252	5450	5671	1.009	1.012
	450	5267	5300	5336	5373	5412	5456	5505	5566	5635	5787	5964	6169	1.004	1.025
	480	6035	6057	6083	6113	6148	6186	6229	6278	6332	6465	6624	6804	0.992	1.034
	510	6979	6992	7010	7031	7055	7084	7118	7161	7209	7316	7451	7615	0.980	1.048
	540	8125	8130	8139	8155	8174	8196	8221	8249	8282	8359	8448	8560	0.962	1.092
	570	10,081	10,088	10,096	10,107	10,118	10,131	10,147	10,166	10,186	10,236	10,303	10,380	0.903	1.279
	600														
	630														
	660														
	MIL	14,749	14,749	14,750	14,750	14,750	14,750	14,749	14,749	14,748	14,746	14,744	14,742	0.844	1.116
	VMAX	597	597	597	597	597	597	597	597	597	596	596	596	1.015	0.976
	MAX ENDURANCE														
	KTAS	221	232	243	253	262	270	279	288	297	312	324	339	1.036	0.963
	FUEL FLOW	2375	2558	2742	2927	3116	3305	3493	3679	3865	4245	4631	5031	1.049	0.949
	MAX RANGE														
	KTAS	287	301	314	322	335	347	358	369	376	386	391	406	1.036	0.963
	FUEL FLOW	2750	2970	3188	3355	3580	3803	4028	4245	4420	4742	5041	5466	1.049	0.949

*TEMPERATURE DEVIATION FROM STANDARD DAY. −−−VMIN LESS THAN 180 KTAS.

	GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	40	44	48	+20°C	−20°C
DRAG INDEX = 150	MIL	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	−−−−	9942	10,068	10,188	1.021	0.954
	VMIN	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	−−−	181	195	210	1.041	0.963
	180	2613	2917	3265	3630	4066	4592	5270	6035	6958				1.109	0.912
	210	2472	2679	2916	3175	3465	3792	4165	4561	4995	6094	7630		1.089	0.922
	240	2532	2685	2857	3055	3260	3494	3746	4025	4335	5054	5914	6932	1.075	0.936
	270	2753	2860	2981	3126	3282	3454	3650	3851	4068	4579	5182	5877	1.059	0.953
	300	3076	3155	3249	3352	3464	3591	3736	3891	4060	4451	4874	5404	1.046	0.972
	330	3473	3535	3605	3683	3773	3871	3978	4095	4226	4533	4881	5294	1.032	0.990
	360	3931	3982	4041	4106	4178	4257	4346	4444	4550	4783	5062	5395	1.023	0.999
	390	4451	4493	4542	4599	4663	4733	4809	4891	4980	5178	5403	5659	1.013	1.011
	420	5107	5143	5182	5225	5274	5334	5401	5473	5551	5727	5930	6157	1.003	1.016
	450	5846	5879	5917	5956	5998	6044	6095	6157	6228	6383	6564	6765	0.995	1.031
	480	6765	6788	6815	6846	6882	6922	6967	7017	7071	7208	7372	7558	0.980	1.043
	510	7903	7912	7929	7949	7973	8001	8034	8076	8122	8227	8368	8543	0.973	1.050
	540	9273	9272	9276	9292	9310	9332	9357	9386	9420	9500	9594	9708	0.957	1.097
	570	11,599	11,602	11,608	11,615	11,622	11,630	11,641	11,655	11,670	11,710	11,768	11,841	0.899	1.322
	600														
	630														
	660														
	MIL	14,687	14,687	14,687	14,688	14,688	14,688	14,687	14,687	14,687	14,686	14,685	14,683	0.846	1.110
	VMAX	587	587	587	587	587	587	587	587	587	587	586	586	1.013	0.975
	MAX ENDURANCE														
	KTAS	218	228	237	246	255	264	273	281	289	304	318	322	1.036	0.963
	FUEL FLOW	2468	2662	2856	3053	3252	3451	3649	3846	4046	4449	4859	5289	1.049	0.949
	MAX RANGE														
	KTAS	279	294	307	320	322	333	343	352	361	378	386	389	1.036	0.963
	FUEL FLOW	2847	3085	3320	3555	3677	3911	4121	4336	4563	5001	5338	5641	1.049	0.949

Figure C4-3. (Sheet 13)

Subsonic Cruise — 8000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	————	————	————	————	————	————	————	————	9948	10,074	10,196	10,316	1.018	0.954
VMIN	———	———	———	———	———	———	———	———	182	196	211	226	1.043	0.963
180	2978	3329	3699	4140	4674	5357	6133	7067					1.120	0.905
210	2759	2997	3258	3550	3881	4258	4661	5101	6215	7784			1.087	0.919
240	2800	2970	3167	3369	3604	3860	4142	4454	5184	6054	7090	8527	1.077	0.932
270	3015	3134	3277	3433	3603	3797	3999	4214	4731	5344	6046	6924	1.063	0.954
300	3352	3444	3546	3657	3782	3927	4085	4254	4644	5074	5608	6204	1.047	0.972
330	3782	3850	3925	4014	4114	4224	4341	4471	4781	5135	5548	5986	1.035	0.990
360	4288	4348	4414	4487	4567	4655	4753	4860	5094	5379	5713	6085	1.022	0.999
390	4878	4926	4983	5047	5117	5193	5276	5364	5567	5796	6051	6364	1.011	1.014
420	5625	5665	5709	5759	5820	5888	5962	6041	6219	6423	6654	6913	0.999	1.022
450	6492	6530	6568	6609	6654	6704	6764	6836	6996	7180	7401	7651	0.985	1.035
480	7559	7586	7617	7655	7699	7746	7797	7853	7997	8170	8366	8589	0.975	1.044
510	8884	8900	8920	8944	8972	9006	9050	9098	9207	9351	9533	9732	0.967	1.052
540	10,458	10,457	10,470	10,486	10,506	10,528	10,555	10,586	10,661	10,750	10,860	11,021	0.957	1.102
570	13,308	13,311	13,317	13,318	13,322	13,329	13,339	13,351	13,386	13,440	13,506	13,585	0.888	1.132
600														
630														
660														
MIL	14,638	14,638	14,638	14,638	14,638	14,638	14,638	14,638	14,638	14,638	14,636	14,633	0.845	1.106
VMAX	579	579	579	579	579	579	579	579	579	579	579	578	1.002	0.974
	MAX ENDURANCE													
KTAS	215	224	233	241	249	260	268	275	289	303	315	326	1.036	0.963
FUEL FLOW	2753	2956	3161	3369	3578	3789	3998	4208	4633	5072	5522	5983	1.049	0.949
	MAX RANGE													
KTAS	283	296	308	320	322	331	340	348	365	381	386	399	1.036	0.963
FUEL FLOW	3157	3399	3641	3883	4005	4230	4469	4688	5159	5646	5978	6503	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **———VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	————	————	————	————	————	————	————	————	9954	10,083	10,205	10,327	1.017	0.954
VMIN	———	———	———	———	———	———	———	———	182	197	212	228	1.043	0.963
180	3039	3393	3769	4213	4756	5443	6232	7178					1.119	0.906
210	2838	3078	3341	3634	3970	4351	4762	5207	6337	7937			1.086	0.921
240	2915	3084	3278	3478	3714	3974	4259	4574	5314	6196	7247	8720	1.075	0.935
270	3169	3287	3429	3584	3753	3946	4147	4361	4888	5508	6219	7115	1.059	0.958
300	3549	3640	3740	3849	3976	4123	4280	4448	4839	5273	5814	6423	1.043	0.976
330	4029	4098	4174	4264	4364	4472	4590	4721	5034	5393	5805	6245	1.030	0.994
360	4605	4664	4729	4802	4882	4969	5068	5175	5415	5700	6037	6413	1.017	1.004
390	5271	5318	5374	5439	5511	5588	5672	5762	5963	6197	6459	6780	1.007	1.019
420	6128	6167	6211	6260	6321	6389	6463	6542	6725	6934	7183	7461	0.992	1.027
450	7122	7160	7199	7241	7291	7346	7413	7489	7659	7857	8079	8326	0.980	1.040
480	8387	8414	8445	8482	8524	8569	8619	8675	8821	8999	9202	9432	0.969	1.049
510	9909	9922	9940	9962	9987	10,019	10,061	10,107	10,211	10,353	10,536	10,737	0.962	1.053
540	11,693	11,685	11,697	11,712	11,732	11,755	11,782	11,814	11,894	11,989	12,108	12,286	0.954	1.114
570														
600														
630														
660														
MIL	14,537	14,536	14,536	14,536	14,536	14,536	14,536	14,535	14,534	14,531	14,527	14,523	0.845	1.107
VMAX	569	569	569	569	569	569	569	569	569	568	568	567	0.987	0.980
	MAX ENDURANCE													
KTAS	212	221	230	239	247	255	263	271	286	300	312	325	1.036	0.963
FUEL FLOW	2835	3047	3261	3477	3695	3918	4138	4359	4806	5273	5747	6233	1.049	0.949
	MAX RANGE													
KTAS	275	288	299	308	317	322	329	337	353	370	384	386	1.036	0.963
FUEL FLOW	3228	3481	3732	3944	4181	4352	4569	4820	5301	5833	6347	6706	1.049	0.949

Figure C4-3. (Sheet 14)

Subsonic Cruise — 8000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL		––––	––––	––––	––––	––––	––––	––––	9960	10,091	10,214	10,339	1.017	0.954
VMIN		–––	–––	–––	–––	–––	–––	–––	183	198	213	229	1.044	0.963
180		3457	3839	4286	4838	5530	6331	7294					1.130	0.894
210		3159	3423	3721	4060	4444	4862	5313	6462	8090			1.086	0.921
240		3198	3389	3587	3826	4088	4376	4695	5445	6339	7404	8915	1.077	0.933
270		3440	3581	3735	3904	4096	4295	4509	5046	5672	6394	7306	1.062	0.960
300		3836	3935	4047	4173	4319	4477	4646	5042	5473	6020	6643	1.042	0.978
330		4352	4426	4515	4616	4725	4843	4974	5294	5651	6065	6518	1.029	0.996
360		4986	5050	5123	5203	5292	5393	5501	5739	6026	6367	6761	1.015	1.006
390		5723	5779	5843	5914	5990	6074	6166	6374	6608	6888	7226	1.004	1.023
420		6683	6727	6776	6837	6907	6984	7070	7266	7488	7740	8019	0.988	1.032
450		7851	7892	7936	7984	8038	8103	8178	8344	8539	8766	9021	0.976	1.042
480		9271	9302	9338	9380	9425	9475	9530	9674	9850	10,054	10,295	0.965	1.049
510		10,964	10,980	11,001	11,026	11,058	11,100	11,147	11,254	11,402	11,596	11,812	0.961	1.058
540		13,022	13,031	13,044	13,061	13,081	13,106	13,135	13,210	13,300	13,414	13,591	0.946	1.120
570														
600														
630														
660														
MIL		14,405	14,405	14,405	14,404	14,402	14,401	14,399	14,393	14,385	14,375	14,357	0.846	1.106
VMAX		556	556	556	556	556	556	556	555	554	553	552	0.974	0.986
	MAX ENDURANCE													
KTAS		221	230	238	247	255	263	271	285	299	312	325	1.036	0.963
FUEL FLOW		3136	3359	3584	3813	4046	4276	4508	4982	5471	5971	6495	1.049	0.949
	MAX RANGE													
KTAS		280	291	299	309	316	323	333	351	367	379	386	1.036	0.963
FUEL FLOW		3553	3809	4031	4282	4511	4738	5012	5574	6143	6662	7137	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL			––––	––––	––––	––––	––––	––––	9966	10,100	10,222	10,351	1.016	0.954
VMIN			–––	–––	–––	–––	–––	–––	184	199	214	230	1.044	0.963
180			3910	4358	4922	5617	6430	7417					1.138	0.887
210			3506	3808	4150	4538	4962	5419	6587	8243			1.085	0.922
240			3501	3696	3938	4203	4494	4819	5576	6482	7564	9118	1.080	0.934
270			3733	3887	4056	4246	4446	4657	5205	5837	6568	7496	1.062	0.958
300			4135	4245	4370	4517	4675	4845	5245	5675	6231	6863	1.041	0.980
330			4683	4772	4871	4982	5103	5237	5555	5913	6332	6792	1.026	0.996
360			5382	5454	5534	5621	5721	5828	6070	6359	6715	7115	1.013	1.008
390			6192	6258	6329	6407	6492	6583	6800	7054	7338	7673	1.002	1.029
420			7280	7333	7398	7471	7550	7635	7828	8051	8307	8593	0.983	1.035
450			8590	8634	8683	8737	8804	8880	9051	9250	9475	9742	0.971	1.043
480			10,177	10,214	10,256	10,302	10,353	10,409	10,557	10,741	10,950	11,189	0.964	1.052
510			12,084	12,103	12,126	12,156	12,197	12,243	12,348	12,498	12,698	12,918	0.956	1.063
540														
570														
600														
630														
660														
MIL			14,219	14,217	14,215	14,212	14,208	14,203	14,191	14,174	14,151	14,113	0.850	1.107
VMAX			540	540	540	540	540	539	538	537	535	532	0.967	0.996
	MAX ENDURANCE													
KTAS			229	238	247	255	263	270	284	298	312	325	1.036	0.963
FUEL FLOW			3456	3691	3931	4173	4415	4657	5158	5671	6197	6757	1.049	0.949
	MAX RANGE													
KTAS			284	295	303	313	322	329	347	359	369	382	1.036	0.963
FUEL FLOW			3890	4166	4417	4691	4953	5222	5814	6346	6882	7498	1.049	0.949

Figure C4-3. (Sheet 15)

Subsonic Cruise — 8000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−1°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL			––––	––––	––––	––––	––––	––––	9972	10,108	10,233	10,363	1.016	0.954
VMIN			–––	–––	–––	–––	–––	–––	184	200	216	232	1.044	0.963
180			3980	4432	5006	5703	6528	7539					1.137	0.889
210			3589	3895	4239	4634	5065	5525	6712	8395			1.084	0.923
240			3612	3806	4050	4319	4611	4943	5707	6627	7743	9323	1.078	0.936
270			3886	4040	4208	4398	4596	4807	5363	6002	6742	7686	1.058	0.960
300			4336	4445	4571	4718	4876	5051	5449	5879	6447	7089	1.037	0.983
330			4942	5033	5136	5248	5368	5501	5819	6177	6609	7067	1.023	0.999
360			5717	5788	5866	5954	6056	6165	6408	6709	7072	7474	1.009	1.012
390			6617	6682	6759	6843	6934	7032	7255	7507	7794	8142	0.996	1.032
420			7854	7906	7971	8044	8123	8209	8405	8631	8890	9183	0.978	1.037
450			9317	9360	9408	9461	9529	9608	9784	9991	10,224	10,487	0.968	1.046
480			11,091	11,126	11,166	11,210	11,259	11,313	11,458	11,640	11,852	12,096	0.962	1.058
510			13,212	13,228	13,249	13,277	13,315	13,358	13,459	13,605	13,805	14,024	0.945	1.067
540														
570														
600														
630														
660														
MIL			14,002	13,999	13,996	13,992	13,987	13,980	13,963	13,941	13,901	13,844	0.857	1.099
VMAX			524	524	523	523	523	522	521	519	516	512	0.964	0.999
MAX ENDURANCE														
KTAS			227	236	244	252	262	269	284	298	310	321	1.036	0.963
FUEL FLOW			3553	3798	4048	4301	4554	4807	5333	5870	6432	7016	1.049	0.949
MAX RANGE														
KTAS			282	292	302	309	316	322	337	349	361	370	1.036	0.963
FUEL FLOW			4046	4316	4608	4847	5115	5357	5942	6486	7085	7673	1.049	0.949

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure C4-3. (Sheet 16)

Subsonic Cruise — 12,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	----	----	----	----	----	----	----	----	8586	8649	8696	8798	1.039	0.948
VMIN	---	---	---	---	---	---	---	---	183	190	198	215	1.038	0.962
180	2492	2833	3206	3697	4317	5064	5933	6845					1.141	0.887
210	2212	2449	2720	3020	3372	3756	4180	4694	5285	6023	6910		1.096	0.905
240	2112	2301	2507	2729	2970	3237	3540	3874	4258	4670	5135	6239	1.087	0.914
270	2151	2283	2435	2602	2799	3003	3220	3459	3718	4007	4324	5064	1.079	0.935
300	2280	2380	2492	2616	2761	2917	3085	3273	3471	3679	3912	4433	1.070	0.955
330	2473	2551	2640	2739	2847	2964	3095	3243	3399	3564	3747	4160	1.059	0.973
360	2714	2780	2853	2933	3020	3116	3220	3330	3448	3580	3727	4059	1.044	0.981
390	3000	3051	3113	3180	3254	3334	3420	3513	3612	3717	3829	4082	1.031	0.993
420	3347	3388	3434	3487	3550	3618	3691	3771	3856	3946	4041	4256	1.023	0.998
450	3734	3770	3808	3849	3895	3950	4012	4079	4151	4230	4315	4504	1.014	1.010
480	4196	4224	4256	4293	4333	4377	4424	4479	4544	4614	4687	4852	1.002	1.019
510	4734	4755	4780	4809	4842	4882	4926	4973	5024	5082	5145	5288	0.995	1.028
540	5392	5411	5433	5458	5485	5516	5550	5587	5627	5670	5716	5831	0.982	1.075
570	6515	6529	6546	6566	6588	6613	6640	6669	6702	6738	6777	6861	0.935	1.298
600	9829	9854	9881	9910	9939	9971	10,006	10,044	10,084	10,128	10,179	10,294	0.783	1.291
630														
660														
MIL	13,839	13,836	13,833	13,830	13,827	13,824	13,821	13,818	13,814	13,811	13,807	13,797	0.840	1.151
VMAX	627	627	626	626	626	626	625	625	625	624	624	623	1.013	0.984
MAX ENDURANCE														
KTAS	244	255	267	280	291	303	314	317	328	338	350	371	1.037	0.961
FUEL FLOW	2111	2272	2435	2597	2758	2917	3075	3235	3399	3561	3723	4052	1.051	0.948
MAX RANGE														
KTAS	329	348	366	380	380	383	398	413	427	441	443	444	1.037	0.961
FUEL FLOW	2466	2683	2896	3085	3165	3272	3489	3705	3922	4134	4242	4438	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **---VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
MIL	----	----	----	----	----	----	----	----	8589	8653	8700	8805	1.039	0.948
VMIN	---	---	---	---	---	---	---	---	183	191	199	216	1.038	0.962
180	2546	2891	3267	3767	4393	5148	6044	7342					1.140	0.889
210	2282	2521	2793	3096	3452	3843	4271	4793	5394	6146	7044		1.095	0.907
240	2212	2399	2603	2826	3068	3340	3645	3982	4372	4792	5264	6384	1.084	0.916
270	2283	2416	2567	2733	2927	3130	3345	3591	3854	4145	4467	5217	1.074	0.939
300	2451	2550	2661	2783	2927	3082	3249	3435	3637	3847	4082	4612	1.064	0.960
330	2688	2765	2852	2950	3056	3172	3301	3447	3603	3773	3961	4375	1.053	0.978
360	2978	3042	3114	3192	3278	3373	3475	3585	3701	3835	3988	4331	1.038	0.986
390	3318	3369	3429	3495	3568	3647	3731	3823	3922	4031	4146	4414	1.025	0.998
420	3731	3771	3815	3868	3929	3996	4068	4149	4237	4331	4432	4661	1.017	1.004
450	4191	4227	4263	4305	4352	4409	4473	4543	4618	4704	4796	4996	1.009	1.017
480	4754	4782	4814	4852	4894	4940	4991	5051	5118	5191	5268	5442	0.997	1.026
510	5429	5450	5475	5503	5536	5577	5622	5671	5725	5786	5855	6007	0.988	1.038
540	6253	6270	6291	6314	6340	6369	6402	6437	6476	6518	6563	6685	0.974	1.098
570	7770	7782	7796	7812	7830	7851	7873	7898	7927	7960	7997	8079	0.911	1.352
600	12,319	12,335	12,356	12,380	12,411	12,446	12,484	12,525	12,570	12,619	12,676	12,807	0.755	1.425
630														
660														
MIL	13,618	13,617	13,616	13,614	13,612	13,610	13,608	13,605	13,603	13,600	13,597	13,589	0.847	1.111
VMAX	608	608	608	608	608	607	607	607	607	607	606	606	1.014	0.975
MAX ENDURANCE														
KTAS	238	248	259	270	281	291	301	311	317	326	336	353	1.037	0.961
FUEL FLOW	2211	2384	2559	2733	2905	3077	3248	3418	3590	3771	3955	4328	1.051	0.948
MAX RANGE														
KTAS	317	325	341	357	372	380	380	389	398	410	421	438	1.037	0.961
FUEL FLOW	2572	2721	2943	3164	3380	3541	3632	3811	4000	4222	4445	4850	1.051	0.948

Figure C4-3. (Sheet 17)

Subsonic Cruise — 12,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	––––	––––	––––	––––	––––	––––	8594	8707	8812	8918	1.037	0.948
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	184	200	217	234	1.040	0.962
180	2601	2948	3328	3838	4470	5232	6152	7458					1.139	0.890
210	2352	2592	2866	3173	3533	3931	4362	4891	5502	7178			1.092	0.910
240	2313	2498	2700	2922	3166	3442	3751	4093	4486	5394	6537	8096	1.085	0.916
270	2417	2549	2699	2864	3056	3256	3474	3723	3989	4611	5372	6314	1.073	0.940
300	2623	2721	2830	2950	3093	3247	3412	3602	3806	4252	4796	5439	1.062	0.962
330	2903	2978	3063	3160	3265	3379	3507	3654	3814	4179	4594	5067	1.049	0.979
360	3242	3305	3375	3451	3536	3630	3731	3843	3964	4261	4604	4999	1.034	0.989
390	3637	3686	3745	3811	3882	3962	4049	4144	4250	4485	4752	5087	1.022	1.004
420	4117	4158	4203	4257	4320	4390	4467	4554	4646	4849	5080	5344	1.013	1.010
450	4672	4711	4751	4795	4844	4903	4971	5044	5122	5304	5511	5743	1.002	1.022
480	5351	5379	5412	5452	5495	5542	5594	5654	5724	5877	6061	6275	0.992	1.035
510	6168	6188	6212	6239	6271	6311	6355	6406	6462	6603	6767	6955	0.984	1.046
540	7173	7189	7210	7234	7261	7292	7326	7364	7406	7499	7627	7783	0.963	1.113
570	9154	9164	9175	9186	9200	9216	9235	9256	9282	9345	9419	9532	0.894	1.403
600														
630														
660														
MIL	13,455	13,455	13,454	13,454	13,452	13,451	13,449	13,447	13,445	13,440	13,433	13,426	0.852	1.083
VMAX	594	594	594	594	594	594	593	593	593	593	592	591	1.016	0.973
	MAX ENDURANCE													
KTAS	236	248	259	270	278	288	298	308	317	329	345	361	1.037	0.961
FUEL FLOW	2308	2492	2679	2863	3047	3230	3411	3595	3782	4179	4581	4999	1.051	0.948
	MAX RANGE													
KTAS	309	317	330	344	357	369	378	380	380	398	414	431	1.037	0.961
FUEL FLOW	2697	2852	3064	3286	3503	3720	3901	4027	4136	4574	5002	5482	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	––––	––––	––––	––––	––––	––––	––––	––––	8600	8714	8819	8927	1.037	0.948
VMIN	–––	–––	–––	–––	–––	–––	–––	–––	185	201	218	236	1.040	0.962
180	2655	3008	3390	3908	4546	5315	6261	7576					1.138	0.892
210	2422	2664	2940	3250	3616	4019	4454	4992	5610	7312			1.090	0.912
240	2413	2596	2796	3018	3266	3545	3858	4203	4602	5525	6691	8284	1.083	0.919
270	2552	2682	2832	2995	3184	3384	3603	3857	4125	4759	5530	6489	1.070	0.943
300	2795	2891	2999	3118	3260	3412	3580	3771	3978	4425	4983	5631	1.057	0.965
330	3119	3192	3275	3370	3474	3587	3718	3869	4034	4397	4820	5299	1.044	0.983
360	3506	3568	3636	3711	3795	3892	3997	4113	4239	4536	4885	5289	1.030	0.995
390	3959	4009	4069	4136	4212	4295	4387	4486	4592	4826	5103	5447	1.016	1.009
420	4529	4571	4618	4674	4740	4812	4890	4975	5068	5279	5518	5790	1.005	1.017
450	5187	5227	5267	5313	5363	5423	5493	5568	5649	5837	6052	6293	0.995	1.027
480	5977	6007	6041	6082	6127	6177	6232	6296	6371	6537	6731	6955	0.987	1.041
510	6962	6983	7008	7037	7071	7114	7162	7215	7272	7418	7591	7786	0.974	1.053
540	8171	8183	8201	8224	8250	8280	8314	8352	8394	8488	8621	8785	0.957	1.123
570	10,637	10,644	10,651	10,656	10,663	10,673	10,686	10,701	10,722	10,775	10,840	10,952	0.881	1.156
600														
630														
660														
MIL	13,331	13,332	13,333	13,333	13,332	13,331	13,329	13,328	13,326	13,322	13,317	13,312	0.855	1.065
VMAX	583	583	583	583	583	583	583	583	583	582	582	581	1.018	0.970
	MAX ENDURANCE													
KTAS	229	240	250	263	273	282	292	301	308	316	326	341	1.037	0.961
FUEL FLOW	2400	2596	2794	2990	3184	3377	3573	3771	3974	4383	4818	5274	1.051	0.948
	MAX RANGE													
KTAS	303	317	317	330	343	351	363	370	379	382	397	412	1.037	0.961
FUEL FLOW	2821	3041	3144	3373	3601	3797	4026	4218	4447	4725	5192	5679	1.051	0.948

Figure C4-3. (Sheet 18)

Subsonic Cruise — 12,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• **STANDARD DAY TEMPERATURE (−9°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	MIL	––––	––––	––––	––––	––––	––––	––––	8605	8721	8827	8937	9053	1.035	0.948
	VMIN	–––	–––	–––	–––	–––	–––	–––	185	202	219	237	255	1.041	0.962
	180	3067	3454	3978	4622	5398	6372	7692						1.142	0.881
	210	2736	3013	3327	3699	4107	4549	5094	5718	7446				1.089	0.913
	240	2695	2892	3114	3367	3648	3964	4314	4721	5656	6845	8471		1.086	0.920
	270	2815	2964	3126	3313	3515	3734	3990	4264	4908	5691	6668	7888	1.071	0.936
	300	3062	3168	3285	3426	3581	3750	3944	4150	4600	5170	5831	6628	1.055	0.962
	330	3405	3486	3581	3686	3802	3936	4091	4255	4620	5052	5530	6121	1.044	0.981
	360	3834	3903	3981	4067	4168	4276	4393	4517	4818	5177	5582	6028	1.028	0.996
	390	4351	4414	4483	4559	4642	4732	4831	4941	5183	5466	5811	6188	1.013	1.012
	420	5001	5049	5106	5174	5248	5328	5417	5511	5728	5972	6242	6556	1.002	1.019
	450	5769	5810	5856	5908	5970	6042	6120	6203	6392	6609	6856	7130	0.987	1.031
	480	6689	6724	6765	6811	6861	6917	6983	7061	7233	7432	7666	7926	0.980	1.044
	510	7831	7853	7880	7912	7953	8001	8054	8113	8266	8449	8655	8890	0.969	1.053
	540	9239	9257	9278	9304	9333	9366	9403	9444	9538	9675	9848	10,038	0.952	1.134
	570	12,262	12,264	12,261	12,261	12,265	12,271	12,280	12,294	12,337	12,392	12,503	12,688	0.871	1.172
	600														
	630														
	660														
	MIL	13,235	13,236	13,236	13,235	13,235	13,234	13,234	13,233	13,231	13,228	13,223	13,215	0.858	1.051
	VMAX	575	575	575	574	574	574	574	574	574	574	573	573	1.011	0.969
	MAX ENDURANCE														
	KTAS	227	237	246	260	269	278	286	293	309	319	333	347	1.037	0.961
	FUEL FLOW	2684	2891	3100	3308	3515	3722	3933	4145	4578	5037	5516	6004	1.051	0.948
	MAX RANGE														
	KTAS	306	317	320	329	339	348	358	366	380	391	408	423	1.037	0.961
	FUEL FLOW	3121	3329	3467	3676	3900	4128	4364	4595	5029	5482	6037	6608	1.051	0.948

*TEMPERATURE DEVIATION FROM STANDARD DAY. ———VMIN LESS THAN 180 KTAS.

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
DRAG INDEX = 250	MIL	––––	––––	––––	––––	––––	––––	––––	8611	8727	8836	8946	9073	1.035	0.948
	VMIN	–––	–––	–––	–––	–––	–––	–––	186	203	221	239	257	1.041	0.962
	180	3125	3518	4048	4699	5481	6479	7807						1.140	0.883
	210	2808	3087	3404	3781	4194	4643	5196	5827	7589				1.088	0.915
	240	2793	2988	3210	3468	3752	4072	4425	4839	5786	6999	8658		1.084	0.923
	270	2948	3096	3257	3445	3646	3866	4124	4403	5057	5852	6852	8108	1.068	0.939
	300	3232	3337	3453	3596	3753	3925	4118	4323	4780	5357	6036	6847	1.050	0.966
	330	3620	3702	3798	3907	4026	4160	4313	4476	4849	5286	5761	6383	1.039	0.985
	360	4113	4184	4264	4351	4450	4557	4673	4801	5110	5472	5874	6333	1.023	1.001
	390	4704	4765	4834	4912	4998	5090	5192	5304	5552	5833	6176	6563	1.009	1.016
	420	5453	5501	5558	5627	5702	5784	5874	5970	6184	6429	6705	7037	0.995	1.025
	450	6337	6377	6422	6472	6534	6607	6686	6770	6963	7187	7452	7742	0.979	1.038
	480	7404	7437	7479	7525	7577	7634	7702	7784	7965	8174	8408	8678	0.973	1.046
	510	8721	8743	8769	8800	8842	8890	8944	9002	9162	9355	9572	9817	0.962	1.058
	540	10,359	10,374	10,393	10,415	10,441	10,471	10,506	10,544	10,633	10,767	10,938	11,143	0.949	1.146
	570														
	600														
	630														
	660														
	MIL	13,116	13,116	13,116	13,116	13,116	13,116	13,115	13,113	13,108	13,102	13,085	13,060	0.860	1.043
	VMAX	566	566	566	566	566	566	566	566	565	565	564	562	0.998	0.971
	MAX ENDURANCE														
	KTAS	225	235	245	255	264	272	281	289	304	319	333	347	1.037	0.961
	FUEL FLOW	2767	2982	3200	3425	3641	3860	4081	4304	4765	5249	5753	6283	1.051	0.948
	MAX RANGE														
	KTAS	296	309	317	319	328	338	347	355	373	385	398	409	1.037	0.961
	FUEL FLOW	3192	3437	3625	3771	3997	4247	4494	4727	5269	5756	6300	6849	1.051	0.948

Figure C4-3. (Sheet 19)

Subsonic Cruise — 12,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL		----	----	----	----	----	----	8617	8734	8845	8956	9093	1.035	0.948
VMIN		---	---	---	---	---	---	187	204	222	240	260	1.041	0.962
180		3582	4118	4778	5563	6586	7918						1.146	0.872
210		3163	3481	3865	4282	4738	5298	5939	7740				1.105	0.914
240		3085	3309	3569	3857	4182	4535	4958	5917	7153			1.083	0.926
270		3228	3389	3578	3779	3998	4261	4542	5206	6015	7039	8327	1.071	0.940
300		3507	3626	3770	3930	4101	4292	4499	4963	5546	6247	7070	1.047	0.968
330		3926	4025	4133	4251	4384	4538	4705	5085	5520	6005	6649	1.036	0.988
360		4471	4549	4635	4736	4846	4966	5095	5408	5767	6175	6655	1.023	1.003
390		5131	5201	5280	5367	5461	5565	5676	5922	6200	6552	6971	1.006	1.018
420		5968	6025	6092	6166	6246	6334	6432	6649	6904	7202	7542	0.990	1.029
450		6959	7004	7054	7118	7195	7278	7368	7573	7804	8067	8369	0.977	1.040
480		8193	8234	8279	8328	8384	8451	8536	8724	8943	9188	9461	0.966	1.049
510		9681	9706	9737	9778	9824	9876	9932	10,090	10,283	10,500	10,757	0.961	1.061
540		11,538	11,555	11,576	11,602	11,631	11,666	11,704	11,794	11,935	12,119	12,322	0.943	1.065
570														
600														
630														
660														
MIL		12,954	12,953	12,952	12,950	12,948	12,945	12,941	12,927	12,906	12,860	12,809	0.861	1.036
VMAX		555	555	555	555	555	555	555	554	553	550	547	0.983	0.973
MAX ENDURANCE														
KTAS		235	245	254	263	272	280	288	303	319	333	346	1.037	0.961
FUEL FLOW		3073	3302	3537	3765	3995	4227	4463	4953	5462	5999	6573	1.051	0.948
MAX RANGE														
KTAS		299	309	317	323	334	344	354	373	380	388	399	1.037	0.961
FUEL FLOW		3500	3733	3944	4160	4434	4710	4998	5584	6027	6514	7121	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **---VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL			----	----	----	----	----	8622	8741	8854	8969	9113	1.035	0.948
VMIN			---	---	---	---	---	187	205	224	242	262	1.041	0.962
180			4188	4857	5645	6693	8027						1.160	0.874
210			3560	3949	4370	4832	5400	6053	7890				1.113	0.912
240			3408	3670	3961	4291	4649	5076	6051	7306			1.085	0.925
270			3524	3712	3913	4130	4398	4684	5355	6181	7225	8545	1.072	0.941
300			3802	3948	4106	4277	4470	4677	5147	5738	6460	7296	1.049	0.971
330			4253	4360	4477	4612	4768	4940	5322	5754	6258	6914	1.034	0.989
360			4842	4930	5032	5144	5266	5397	5706	6067	6490	6983	1.021	1.005
390			5580	5658	5744	5836	5939	6049	6296	6583	6963	7380	1.003	1.022
420			6496	6564	6639	6720	6812	6913	7147	7414	7710	8059	0.990	1.032
450			7629	7682	7746	7822	7904	7992	8197	8438	8715	9018	0.972	1.044
480			9019	9064	9115	9171	9241	9325	9513	9730	9977	10,261	0.963	1.050
510			10,654	10,684	10,726	10,772	10,825	10,883	11,050	11,256	11,489	11,751	0.959	1.065
540														
570														
600														
630														
660														
MIL			12,694	12,690	12,686	12,680	12,673	12,665	12,639	12,592	12,528	12,450	0.868	1.031
VMAX			540	540	540	539	539	538	537	534	530	526	0.976	0.978
MAX ENDURANCE														
KTAS			244	254	263	271	280	287	303	318	332	346	1.037	0.961
FUEL FLOW			3405	3650	3888	4128	4373	4621	5141	5674	6255	6867	1.051	0.948
MAX RANGE														
KTAS			301	312	321	329	336	345	363	380	380	390	1.037	0.961
FUEL FLOW			3813	4087	4347	4597	4853	5150	5758	6369	6766	7378	1.051	0.948

Figure C4-3. (Sheet 20)

Subsonic Cruise — 12,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−9°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR													
	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 400	**MIL**			––––	––––	––––	––––	––––	8628	8747	8863	8982	9136	1.035	0.948
	VMIN			–––	–––	–––	–––	–––	188	206	225	244	265	1.041	0.962
	180			4257	4936	5728	6799	8558						1.145	0.876
	210			3639	4034	4458	4928	5501	6173	8041				1.112	0.914
	240			3506	3773	4067	4399	4764	5195	6185	7459			1.082	0.927
	270			3660	3848	4046	4264	4535	4829	5510	6348	7410	8764	1.069	0.943
	300			3981	4126	4284	4456	4649	4863	5330	5937	6672	7522	1.045	0.974
	330			4482	4591	4710	4847	5008	5180	5559	6000	6518	7182	1.030	0.992
	360			5145	5234	5337	5449	5569	5698	6007	6379	6821	7312	1.016	1.007
	390			5960	6036	6121	6213	6317	6430	6689	6997	7375	7802	1.002	1.028
	420			6992	7064	7144	7231	7326	7428	7660	7929	8241	8596	0.984	1.035
	450			8269	8323	8389	8467	8553	8645	8854	9092	9367	9681	0.967	1.046
	480			9818	9861	9911	9968	10,039	10,126	10,320	10,547	10,802	11,087	0.961	1.054
	510			11,663	11,691	11,730	11,774	11,824	11,880	12,045	12,251			0.955	1.062
	540														
	570														
	600														
	630														
	660														
	MIL			12,398	12,392	12,384	12,373	12,361	12,347	12,305	12,238	12,153	12,035	0.880	1.017
	VMAX			523	522	522	521	521	520	517	513	508	502	0.973	0.979
	MAX ENDURANCE														
	KTAS			241	250	263	270	279	287	303	317	330	343	1.037	0.961
	FUEL FLOW			3506	3763	4012	4264	4520	4784	5329	5894	6518	7158	1.051	0.948
	MAX RANGE														
	KTAS			300	312	317	321	328	337	353	365	380	380	1.037	0.961
	FUEL FLOW			3982	4277	4490	4712	4978	5290	5884	6471	7145	7592	1.051	0.948

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure C4-3. (Sheet 21)

Subsonic Cruise — 16,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	MIL	----	----	----	----	----	----	7173	7232	7296	7359	7421	7547	1.050	0.941
	VMIN	---	---	---	---	---	---	186	195	205	214	223	243	1.038	0.961
	180	2595	3022	3576	4289	5167	6413							1.150	0.866
	210	2237	2516	2843	3221	3637	4162	4756	5569	6508				1.115	0.901
	240	2104	2309	2537	2790	3079	3418	3802	4238	4722	5275	5965		1.100	0.903
	270	2065	2221	2400	2598	2808	3042	3296	3598	3923	4293	4725	5740	1.089	0.921
	300	2123	2239	2375	2527	2692	2879	3076	3281	3524	3790	4070	4750	1.074	0.940
	330	2261	2354	2458	2572	2701	2848	3006	3176	3362	3567	3783	4277	1.066	0.958
	360	2452	2528	2612	2705	2807	2918	3036	3175	3327	3488	3665	4080	1.053	0.975
	390	2686	2750	2820	2898	2982	3074	3173	3280	3395	3518	3662	4002	1.038	0.987
	420	2968	3016	3075	3140	3211	3288	3372	3462	3558	3663	3774	4030	1.030	0.994
	450	3303	3343	3388	3439	3499	3564	3635	3712	3795	3884	3979	4205	1.017	1.007
	480	3701	3737	3776	3820	3868	3921	3982	4048	4119	4198	4288	4485	1.006	1.016
	510	4167	4195	4226	4264	4306	4352	4406	4467	4535	4608	4685	4853	1.000	1.030
	540	4780	4807	4838	4871	4908	4949	4992	5039	5092	5150	5216	5358	0.977	1.092
	570	6201	6225	6251	6280	6312	6348	6389	6434	6483	6534	6588	6734	0.867	1.308
	600	9354	9391	9428	9467	9509	9555	9604	9658	9720	9788	9861	10,021	0.787	1.312
	630														
	660														
	MIL	12,608	12,603	12,599	12,594	12,590	12,585	12,580	12,575	12,569	12,561	12,554	12,537	0.852	1.050
	VMAX	624	623	623	623	622	622	621	621	621	620	620	618	1.014	0.974
	MAX ENDURANCE														
	KTAS	265	278	291	304	312	320	333	345	356	367	375	394	1.038	0.960
	FUEL FLOW	2064	2218	2372	2527	2683	2844	3005	3166	3327	3486	3646	4001	1.052	0.946
	MAX RANGE														
	KTAS	358	374	375	389	405	420	436	437	437	441	453	468	1.038	0.960
	FUEL FLOW	2439	2623	2702	2888	3091	3290	3494	3583	3673	3808	4005	4359	1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **---VMIN LESS THAN 180 KTAS.**

	GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
DRAG INDEX = 50	MIL	----	----	----	----	----	----	7178	7237	7303	7367	7430	7558	1.050	0.941
	VMIN	---	---	---	---	---	---	187	196	206	215	225	244	1.038	0.961
	180	2647	3081	3642	4358	5255	6514							1.148	0.867
	210	2300	2581	2910	3296	3717	4249	4850	5677	6641				1.114	0.903
	240	2187	2390	2620	2876	3172	3514	3902	4347	4835	5406	6103		1.097	0.906
	270	2180	2334	2512	2708	2918	3154	3418	3722	4049	4430	4865	5908	1.086	0.923
	300	2271	2386	2521	2672	2835	3022	3218	3428	3679	3946	4229	4924	1.069	0.945
	330	2448	2540	2643	2755	2882	3029	3187	3356	3548	3762	3977	4480	1.059	0.963
	360	2682	2756	2839	2931	3032	3142	3261	3400	3552	3723	3909	4322	1.047	0.980
	390	2965	3027	3096	3172	3256	3348	3448	3556	3671	3801	3957	4304	1.032	0.992
	420	3303	3350	3408	3472	3543	3621	3705	3796	3898	4012	4133	4398	1.023	1.000
	450	3703	3742	3787	3838	3899	3966	4042	4127	4218	4316	4420	4649	1.012	1.018
	480	4183	4222	4266	4314	4368	4429	4497	4571	4649	4734	4824	5023	0.999	1.026
	510	4788	4818	4853	4894	4939	4988	5042	5102	5171	5245	5324	5502	0.986	1.038
	540	5565	5591	5619	5652	5688	5728	5772	5819	5872	5933	6004	6156	0.967	1.117
	570	7462	7483	7508	7535	7565	7598	7636	7678	7723	7775	7831	7988	0.843	1.371
	600	11,886	11,921	11,961	12,005	12,053	12,106	12,163	12,225	12,299	12,377	12,460		0.749	1.438
	630														
	660														
	MIL	12,347	12,344	12,341	12,338	12,334	12,331	12,327	12,322	12,317	12,311	12,305	12,292	0.863	1.017
	VMAX	604	604	604	603	603	603	603	602	602	601	601	600	1.018	0.966
	MAX ENDURANCE														
	KTAS	254	266	278	290	301	312	319	329	341	352	363	375	1.038	0.960
	FUEL FLOW	2167	2333	2500	2667	2835	3006	3180	3356	3534	3720	3909	4291	1.052	0.946
	MAX RANGE														
	KTAS	334	352	370	374	382	397	410	422	428	437	437	445	1.038	0.960
	FUEL FLOW	2479	2698	2919	3034	3186	3409	3611	3812	3966	4159	4271	4596	1.052	0.946

Figure C4-3. (Sheet 22)

Subsonic Cruise — 16,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (−17°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	----	----	----	----	----	----	7183	7244	7310	7440	7568	7766	1.051	0.941
VMIN	---	---	---	---	---	---	188	197	207	226	246	266	1.038	0.962
180	2698	3139	3707	4427	5343	6614							1.146	0.869
210	2362	2647	2980	3372	3798	4337	4950	5786	6773				1.113	0.904
240	2271	2472	2705	2963	3266	3610	4007	4457	4947	6240			1.092	0.912
270	2294	2447	2623	2819	3027	3268	3540	3845	4180	5005	6076	7457	1.085	0.924
300	2420	2533	2666	2816	2980	3165	3362	3580	3833	4396	5098	5986	1.068	0.949
330	2635	2725	2827	2939	3065	3212	3369	3543	3744	4171	4692	5303	1.055	0.967
360	2912	2985	3066	3158	3260	3370	3488	3629	3793	4155	4569	5044	1.044	0.983
390	3244	3306	3375	3452	3535	3627	3729	3845	3970	4262	4607	5018	1.029	0.999
420	3642	3689	3747	3812	3886	3970	4061	4160	4267	4504	4771	5126	1.019	1.008
450	4126	4169	4217	4273	4339	4411	4489	4575	4666	4871	5115	5393	1.004	1.022
480	4728	4765	4808	4856	4908	4969	5038	5113	5197	5385	5598	5836	0.992	1.033
510	5446	5477	5512	5554	5600	5651	5707	5772	5844	6003	6183	6382	0.983	1.045
540	6398	6421	6448	6478	6511	6548	6589	6634	6683	6815	6976	7163	0.961	1.139
570	8868	8887	8909	8935	8963	8996	9035	9079	9126	9232	9393	9579	0.817	1.208
600														
630														
660														
MIL	12,133	12,131	12,128	12,123	12,119	12,114	12,108	12,102	12,095	12,079	12,060	12,036	0.869	1.001
VMAX	590	590	589	589	589	589	588	588	588	587	586	585	1.019	0.965
	MAX ENDURANCE													
KTAS	252	265	275	287	298	308	313	325	335	352	370	382	1.038	0.960
FUEL FLOW	2264	2441	2619	2798	2979	3161	3345	3541	3742	4149	4560	5013	1.052	0.946
	MAX RANGE													
KTAS	324	340	354	367	374	378	385	396	407	428	437	442	1.038	0.960
FUEL FLOW	2581	2803	3017	3221	3377	3514	3679	3905	4134	4591	4935	5295	1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **---VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	----	----	----	----	----	----	7187	7252	7318	7449	7581	7790	1.051	0.941
VMIN	---	---	---	---	---	---	188	198	208	228	248	268	1.038	0.961
180	2749	3197	3772	4497	5430	6710							1.144	0.871
210	2424	2712	3051	3447	3881	4424	5056	5894	6905				1.111	0.905
240	2355	2553	2790	3049	3361	3706	4113	4567	5061	6379			1.089	0.915
270	2408	2560	2735	2930	3136	3387	3662	3968	4314	5145	6244	7651	1.081	0.928
300	2568	2680	2812	2962	3125	3309	3515	3733	3987	4567	5272	6195	1.062	0.953
330	2822	2911	3012	3124	3250	3395	3559	3740	3941	4367	4905	5519	1.051	0.972
360	3143	3216	3297	3388	3489	3599	3727	3876	4042	4401	4834	5309	1.039	0.990
390	3528	3589	3658	3736	3826	3925	4034	4152	4277	4567	4934	5351	1.022	1.004
420	4001	4051	4114	4184	4260	4344	4436	4535	4643	4887	5178	5535	1.012	1.013
450	4582	4625	4673	4728	4795	4867	4946	5038	5137	5358	5607	5886	0.999	1.031
480	5293	5332	5376	5425	5480	5544	5617	5696	5781	5968	6180	6420	0.987	1.038
510	6140	6169	6203	6243	6287	6336	6390	6454	6526	6692	6891	7113	0.980	1.051
540	7275	7298	7325	7355	7390	7428	7471	7517	7570	7716	7887	8077	0.953	1.162
570	10,399	10,413	10,434	10,458	10,486	10,517	10,554	10,597	10,645	10,755	10,932	11,140	0.791	1.241
600														
630														
660														
MIL	11,897	11,896	11,894	11,891	11,887	11,883	11,879	11,873	11,868	11,855	11,837	11,815	0.879	0.996
VMAX	578	578	578	578	577	577	577	577	576	576	575	574	1.021	0.964
	MAX ENDURANCE													
KTAS	235	259	270	280	290	300	310	311	315	332	349	363	1.038	0.960
FUEL FLOW	2353	2546	2735	2926	3117	3309	3511	3722	3934	4366	4830	5309	1.052	0.946
	MAX RANGE													
KTAS	312	326	340	353	365	371	374	381	392	410	424	437	1.038	0.960
FUEL FLOW	2657	2879	3096	3320	3539	3701	3856	4053	4298	4759	5228	5693	1.052	0.946

Figure C4-3. (Sheet 23)

Subsonic Cruise — 16,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	––––	––––	––––	––––	7191	7259	7325	7459	7597	7814	8041	1.052	0.941
VMIN	–––	–––	–––	–––	–––	189	199	209	229	250	271	292	1.038	0.961
180	3255	3839	4567	5516	7125								1.142	0.873
210	2777	3124	3523	3966	4511	5161	6002	7036					1.116	0.903
240	2636	2875	3138	3455	3803	4220	4676	5183	6525				1.092	0.913
270	2673	2848	3041	3248	3507	3783	4095	4448	5289	6411			1.076	0.932
300	2827	2959	3109	3271	3461	3670	3886	4141	4738	5448	6402	7588	1.070	0.952
330	3099	3199	3310	3434	3588	3758	3939	4138	4575	5118	5741	6555	1.052	0.971
360	3449	3528	3622	3731	3849	3977	4126	4290	4659	5102	5575	6154	1.039	0.986
390	3889	3963	4046	4136	4236	4344	4461	4586	4894	5270	5687	6150	1.020	1.005
420	4433	4495	4565	4641	4725	4817	4924	5042	5301	5591	5949	6355	1.011	1.018
450	5102	5153	5211	5283	5360	5445	5536	5634	5854	6105	6392	6730	0.994	1.029
480	5924	5967	6014	6067	6130	6203	6282	6367	6567	6800	7063	7354	0.986	1.042
510	6889	6924	6967	7015	7067	7126	7195	7276	7452	7651	7874	8139	0.975	1.051
540	8238	8262	8291	8323	8360	8402	8447	8499	8651	8831	9032	9268	0.943	1.177
570														
600														
630														
660														
MIL	11,706	11,705	11,703	11,701	11,698	11,695	11,692	11,688	11,679	11,661	11,640	11,617	0.888	0.993
VMAX	569	569	568	568	568	568	568	568	567	566	565	564	1.020	0.963
MAX ENDURANCE														
KTAS	241	257	267	277	286	295	303	311	325	341	356	370	1.038	0.960
FUEL FLOW	2635	2840	3040	3241	3452	3668	3885	4104	4572	5066	5570	6091	1.052	0.946
MAX RANGE														
KTAS	315	328	341	347	358	369	374	379	398	419	437	445	1.038	0.960
FUEL FLOW	2951	3184	3419	3592	3825	4069	4261	4454	4988	5577	6152	6654	1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL	––––	––––	––––	––––	7130	7197	7266	7332	7469	7619	7844	8075	1.052	0.941
VMIN	–––	–––	–––	–––	180	190	200	210	231	252	274	295	1.038	0.961
180	3313	3907	4637	5602									1.141	0.875
210	2842	3197	3598	4050	4598	5264	6109						1.106	0.907
240	2718	2959	3230	3550	3899	4327	4785	5312	6683				1.091	0.915
270	2788	2961	3152	3365	3627	3905	4225	4583	5442	6579			1.073	0.935
300	2976	3107	3255	3421	3617	3825	4039	4300	4909	5631	6610	7821	1.067	0.956
330	3287	3386	3499	3632	3789	3958	4138	4335	4787	5331	5987	6808	1.047	0.975
360	3691	3776	3875	3984	4102	4229	4377	4541	4928	5371	5842	6451	1.034	0.991
390	4205	4278	4360	4449	4548	4657	4782	4917	5232	5608	6022	6509	1.015	1.012
420	4821	4888	4963	5046	5136	5234	5341	5458	5717	6009	6375	6795	1.003	1.021
450	5608	5657	5715	5786	5863	5947	6038	6136	6361	6629	6928	7271	0.989	1.034
480	6528	6573	6624	6681	6749	6829	6916	7009	7214	7449	7720	8021	0.978	1.045
510	7662	7695	7736	7781	7833	7890	7962	8046	8231	8439	8675	8964	0.966	1.057
540	9243	9266	9293	9324	9361	9402	9449	9503	9673	9875	10,099	10,343	0.939	1.202
570														
600														
630														
660														
MIL	11,546	11,547	11,546	11,545	11,544	11,541	11,538	11,533	11,519	11,485	11,445	11,399	0.894	0.991
VMAX	561	561	561	561	561	560	560	560	559	557	555	553	1.010	0.964
MAX ENDURANCE														
KTAS	240	251	262	272	282	291	299	308	324	340	355	370	1.038	0.960
FUEL FLOW	2718	2935	3143	3361	3585	3811	4039	4269	4774	5295	5828	6404	1.052	0.946
MAX RANGE														
KTAS	312	319	327	337	347	358	368	376	394	412	425	437	1.038	0.960
FUEL FLOW	3085	3263	3463	3702	3948	4200	4456	4708	5288	5882	6446	7030	1.052	0.946

Figure C4-3. (Sheet 24)

Subsonic Cruise — 16,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW−1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL		−−−−	−−−−	−−−−	7135	7204	7273	7340	7479	7642	7876	8111	1.052	0.941
VMIN		−−−	−−−	−−−	181	191	201	211	232	254	277	299	1.038	0.961
180		3973	4711	5688									1.162	0.872
210		3269	3673	4134	4685	5367	6229						1.113	0.907
240		3044	3323	3644	4000	4433	4894	5440	6840				1.091	0.908
270		3074	3267	3482	3747	4027	4357	4718	5599	6757			1.078	0.932
300		3255	3406	3579	3774	3980	4194	4465	5079	5835	6819	8054	1.067	0.951
330		3583	3701	3835	3990	4158	4337	4545	5000	5545	6237	7061	1.045	0.976
360		4033	4131	4238	4355	4482	4637	4812	5201	5641	6128	6747	1.031	0.992
390		4595	4677	4773	4879	4996	5123	5259	5573	5946	6380	6870	1.012	1.012
420		5313	5387	5468	5557	5655	5762	5880	6138	6442	6819	7244	0.999	1.023
450		6168	6225	6296	6377	6466	6563	6666	6899	7171	7477	7821	0.985	1.037
480		7229	7277	7333	7401	7483	7571	7666	7879	8120	8401	8732	0.970	1.047
510		8497	8537	8583	8636	8696	8772	8863	9067	9297	9552	9847	0.964	1.064
540		10,368	10,392	10,421	10,455	10,493	10,537	10,587	10,755	10,957			0.927	1.077
570														
600														
630														
660														
MIL		11,353	11,351	11,348	11,345	11,340	11,334	11,325	11,290	11,210	11,112	11,000	0.897	0.990
VMAX		550	550	550	550	549	549	549	547	543	539	534	0.996	0.966
MAX ENDURANCE														
KTAS		251	262	271	281	289	299	307	324	340	355	369	1.038	0.960
FUEL FLOW		3028	3249	3481	3716	3952	4191	4443	4976	5523	6105	6715	1.052	0.946
MAX RANGE														
KTAS		312	321	333	345	356	365	374	384	401	413	429	1.038	0.960
FUEL FLOW		3362	3594	3870	4148	4428	4696	4980	5479	6103	6706	7398	1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 350

KTAS \ GW−1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL			−−−−	−−−−	7139	7211	7280	7349	7489	7665	7910	8157	1.052	0.941
VMIN			−−−	−−−	182	192	202	213	234	256	280	303	1.038	0.961
180			4793	5773									1.145	0.859
210			3750	4218	4772	5472	6354						1.122	0.900
240			3416	3738	4102	4539	5004	5568	6997				1.091	0.910
270			3385	3600	3866	4154	4490	4853	5759	6941			1.076	0.931
300			3565	3737	3930	4135	4355	4633	5250	6039	7032		1.063	0.957
330			3906	4037	4192	4359	4548	4760	5213	5766	6488	7323	1.040	0.976
360			4386	4494	4616	4752	4910	5087	5474	5914	6425	7044	1.027	0.993
390			5022	5118	5224	5341	5467	5603	5914	6301	6745	7232	1.010	1.013
420			5815	5895	5984	6080	6186	6309	6582	6891	7271	7693	0.997	1.026
450			6769	6842	6923	7012	7109	7214	7452	7725	8032	8410	0.979	1.040
480			7953	8008	8076	8158	8248	8347	8577	8842	9144	9476	0.966	1.054
510			9417	9465	9519	9579	9656	9748	9952	10,181	10,435		0.956	1.069
540														
570														
600														
630														
660														
MIL			11,010	10,999	10,986	10,971	10,953	10,929	10,856	10,765	10,652	10,483	0.909	0.994
VMAX			534	534	533	532	532	530	526	521	515	505	0.989	0.970
MAX ENDURANCE														
KTAS			261	271	280	289	298	307	324	339	355	369	1.038	0.960
FUEL FLOW			3357	3600	3845	4092	4350	4619	5178	5753	6390	7027	1.052	0.946
MAX RANGE														
KTAS			319	330	341	346	356	364	375	386	404	419	1.038	0.960
FUEL FLOW			3759	4038	4323	4544	4849	5143	5662	6236	6960	7669	1.052	0.946

Figure C4-3. (Sheet 25)

Subsonic Cruise — 16,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−17°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

TOTAL FUEL FLOW LB/HR — **DRAG INDEX = 400**

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL			––––	––––	7144	7217	7287	7358	7502	7688	7945	8207	1.052	0.941
VMIN			–––	–––	182	193	203	214	236	259	283	308	1.038	0.962
180			4875	5858									1.145	0.861
210			3829	4301	4860	5576	6480						1.122	0.902
240			3508	3833	4205	4645	5116	5695	7154				1.091	0.913
270			3506	3718	3986	4284	4623	4987	5920	7128			1.073	0.934
300			3725	3895	4086	4295	4520	4800	5423	6242	7256		1.059	0.960
330			4110	4240	4397	4573	4765	4976	5426	6009	6738	7595	1.036	0.979
360			4653	4768	4892	5029	5187	5363	5747	6209	6721	7342	1.022	0.996
390			5372	5466	5572	5688	5813	5947	6269	6669	7113	7599	1.007	1.019
420			6248	6332	6425	6526	6637	6760	7036	7346	7724	8184	0.992	1.029
450			7327	7401	7483	7572	7669	7773	8009	8308	8644	9022	0.972	1.047
480			8666	8725	8799	8889	8987	9092	9325	9588	9889		0.959	1.057
510			10,311	10,357	10,408	10,466	10,542						0.944	1.062
540														
570														
600														
630														
660														
MIL			10,670	10,656	10,639	10,619	10,591	10,552	10,458	10,356	10,271	10,165	0.928	0.980
VMAX			516	515	514	513	511	509	504	497	489	479	0.991	0.969
MAX ENDURANCE														
KTAS			261	270	279	289	298	306	318	336	351	366	1.038	0.960
FUEL FLOW			3466	3718	3973	4235	4513	4795	5375	6003	6673	7336	1.052	0.946
MAX RANGE														
KTAS			312	323	330	338	347	355	374	378	395	402	1.038	0.960
FUEL FLOW			3856	4142	4396	4675	4983	5291	5958	6454	7192	7802	1.052	0.946

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

Figure C4-3. (Sheet 26)

Subsonic Cruise — 20,000 Feet

DATA BASIS ESTIMATED | **CONDITIONS:** | **ENGINE F100-PW-229/CFT**

• **STANDARD DAY TEMPERATURE (−25°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	––––	––––	––––	––––	5881	5942	6004	6066	6128	6189	6284	6487	1.052	0.941
VMIN	–––	–––	–––	–––	188	199	211	222	233	244	255	278	1.039	0.961
180	2823	3463	4272	5434									1.163	0.864
210	2310	2669	3074	3564	4173	4956							1.122	0.902
240	2103	2336	2616	2940	3328	3761	4262	4860	5613				1.106	0.894
270	2006	2199	2400	2629	2891	3189	3526	3916	4361	4880	5485		1.094	0.905
300	2008	2157	2320	2504	2702	2921	3170	3439	3748	4083	4447	5410	1.078	0.915
330	2096	2206	2328	2474	2632	2803	3003	3213	3431	3690	3972	4607	1.070	0.936
360	2231	2319	2417	2525	2641	2778	2929	3105	3295	3500	3717	4211	1.065	0.958
390	2412	2485	2566	2655	2752	2857	2970	3101	3257	3430	3612	4027	1.050	0.978
420	2626	2688	2756	2831	2913	3002	3098	3202	3314	3447	3600	3943	1.041	0.991
450	2909	2957	3013	3077	3146	3222	3303	3391	3488	3599	3722	3991	1.023	1.005
480	3249	3291	3338	3390	3449	3513	3582	3657	3741	3838	3946	4180	1.010	1.014
510	3657	3690	3728	3769	3815	3867	3928	4002	4081	4165	4255	4453	1.002	1.036
540	4168	4199	4234	4273	4316	4362	4412	4474	4541	4612	4687	4850	0.983	1.214
570	5950	5981	6015	6053	6096	6144	6195	6250	6313	6391	6473	6652	0.806	1.332
600	9062	9101	9145	9192	9244	9301	9370	9444	9528	9621	9726	10,008	0.780	1.335
630														
660														
MIL	10,868	10,847	10,826	10,804	10,796	10,789	10,779	10,769	10,757	10,745	10,733	10,701	0.899	1.002
VMAX	617	616	615	614	614	613	613	612	611	611	610	608	1.021	0.966
MAX ENDURANCE														
KTAS	283	297	311	327	342	356	368	373	388	399	410	430	1.039	0.959
FUEL FLOW	1999	2156	2316	2474	2628	2778	2925	3090	3257	3427	3596	3937	1.054	0.945
MAX RANGE														
KTAS	374	393	411	429	430	430	433	447	461	461	473	491	1.039	0.959
FUEL FLOW	2306	2503	2698	2889	2975	3059	3175	3365	3565	3678	3891	4272	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
MIL	––––	––––	––––	––––	5885	5948	6011	6074	6137	6199	6304	6512	1.052	0.941
VMIN	–––	–––	–––	–––	189	201	212	223	234	246	257	281	1.039	0.961
180	2875	3520	4341	5515									1.160	0.863
210	2365	2732	3145	3637	4257	5073							1.120	0.904
240	2174	2409	2696	3022	3418	3853	4367	4968	5751				1.103	0.896
270	2105	2296	2495	2732	2996	3299	3640	4032	4493	5014	5648		1.091	0.908
300	2139	2286	2449	2631	2835	3052	3304	3582	3892	4230	4611	5594	1.073	0.920
330	2260	2369	2489	2634	2792	2969	3171	3381	3603	3870	4153	4806	1.063	0.942
360	2430	2516	2613	2719	2835	2974	3140	3317	3505	3713	3944	4436	1.059	0.964
390	2653	2725	2804	2892	2988	3098	3219	3359	3520	3691	3879	4309	1.045	0.984
420	2917	2977	3044	3118	3200	3290	3396	3513	3638	3770	3922	4279	1.035	0.999
450	3257	3303	3359	3422	3493	3575	3669	3770	3879	3995	4118	4390	1.017	1.015
480	3664	3706	3754	3813	3882	3957	4038	4125	4219	4319	4427	4665	1.004	1.026
510	4186	4224	4266	4313	4364	4425	4493	4566	4645	4729	4818	5034	0.992	1.043
540	4864	4892	4923	4958	4998	5041	5094	5163	5238	5317	5401	5582	0.974	1.254
570	7221	7253	7289	7329	7376	7428	7484	7544	7613	7701	7793	7995	0.778	1.406
600														
630														
660														
MIL	10,519	10,515	10,510	10,505	10,499	10,493	10,485	10,477	10,468	10,459	10,448	10,423	0.912	0.986
VMAX	596	596	595	595	595	594	594	593	593	592	591	590	1.025	0.962
MAX ENDURANCE														
KTAS	270	284	297	313	327	342	354	365	369	376	390	412	1.039	0.959
FUEL FLOW	2104	2274	2448	2622	2791	2963	3139	3316	3496	3683	3879	4277	1.054	0.945
MAX RANGE														
KTAS	369	369	385	401	417	426	430	430	434	445	455	465	1.039	0.959
FUEL FLOW	2484	2567	2771	2972	3180	3335	3468	3580	3732	3949	4162	4510	1.054	0.945

Figure C4-3. (Sheet 27)

Subsonic Cruise — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
		TOTAL FUEL FLOW LB/HR													
DRAG INDEX = 100	MIL	−−−−	−−−−	−−−−	−−−−	5889	5954	6017	6082	6145	6324	6539	6748	1.053	0.941
	VMIN	−−−	−−−	−−−	−−−	190	202	213	225	236	260	284	307	1.039	0.961
	180	2933	3577	4409	5595									1.159	0.864
	210	2424	2796	3215	3710	4341	5185							1.118	0.906
	240	2245	2482	2777	3104	3508	3946	4472	5082	5888				1.100	0.899
	270	2203	2392	2591	2835	3101	3411	3754	4152	4625	5812			1.085	0.915
	300	2269	2416	2577	2761	2968	3184	3440	3725	4036	4774	5794		1.068	0.929
	330	2424	2531	2650	2795	2959	3140	3340	3552	3781	4335	5010	5824	1.056	0.945
	360	2628	2713	2809	2915	3039	3188	3353	3529	3720	4171	4663	5290	1.053	0.968
	390	2894	2964	3044	3137	3241	3357	3483	3622	3785	4160	4592	5074	1.040	0.989
	420	3209	3270	3340	3423	3514	3613	3721	3837	3963	4259	4634	5048	1.027	1.004
	450	3623	3675	3738	3810	3889	3975	4067	4167	4276	4530	4826	5185	1.008	1.020
	480	4140	4185	4237	4295	4364	4439	4520	4609	4706	4936	5196	5484	0.996	1.031
	510	4760	4796	4836	4883	4939	5005	5081	5163	5250	5442	5661	5917	0.989	1.053
	540	5617	5644	5675	5710	5750	5794	5843	5912	5987	6151	6333	6541	0.962	1.288
	570	8659	8688	8721	8757	8800	8848	8900	8970	9050	9264	9503	9770	0.757	1.383
	600														
	630														
	660														
	MIL	10,327	10,327	10,327	10,326	10,326	10,325	10,325	10,324	10,323	10,321	10,319	10,317	0.914	0.975
	VMAX	582	582	581	581	581	580	580	579	579	578	576	575	1.025	0.961
MAX ENDURANCE															
	KTAS	268	281	292	304	319	330	341	351	362	379	395	413	1.039	0.959
	FUEL FLOW	2203	2385	2570	2760	2950	3140	3330	3523	3719	4148	4591	5044	1.054	0.945
MAX RANGE															
	KTAS	355	368	369	376	393	406	417	430	430	434	453	469	1.039	0.959
	FUEL FLOW	2590	2773	2865	3020	3267	3484	3697	3925	4044	4360	4860	5350	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

	KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	MIL	−−−−	−−−−	−−−−	−−−−	5895	5960	6024	6090	6154	6344	6566	6787	1.053	0.941
	VMIN	−−−	−−−	−−−	−−−	191	203	214	226	237	262	287	311	1.039	0.961
	180	2991	3634	4476	5846									1.160	0.879
	210	2486	2859	3285	3783	4425	5292							1.116	0.908
	240	2316	2560	2858	3192	3598	4045	4577	5214	6025				1.098	0.901
	270	2302	2489	2691	2938	3206	3523	3868	4275	4757	5975			1.082	0.917
	300	2400	2546	2706	2895	3101	3315	3582	3868	4180	4938	5993		1.065	0.934
	330	2588	2694	2813	2964	3130	3310	3511	3730	3960	4522	5213	6058	1.051	0.951
	360	2826	2911	3013	3128	3254	3403	3566	3747	3951	4398	4900	5541	1.046	0.974
	390	3143	3218	3304	3401	3508	3624	3749	3895	4065	4448	4877	5372	1.033	0.996
	420	3530	3596	3670	3752	3842	3941	4050	4170	4307	4617	4990	5406	1.020	1.010
	450	4028	4078	4141	4212	4291	4379	4478	4588	4708	4970	5263	5623	1.002	1.029
	480	4630	4675	4729	4793	4868	4951	5041	5137	5241	5470	5730	6019	0.990	1.037
	510	5389	5426	5469	5517	5571	5636	5711	5792	5879	6070	6289	6557	0.980	1.055
	540	6388	6411	6439	6471	6509	6553	6602	6677	6759	6937	7135	7355	0.960	1.332
	570	10,378	10,409											0.720	1.445
	600														
	630														
	660														
	MIL	10,311	10,310	10,310	10,310	10,309	10,309	10,308	10,308	10,307	10,303	10,296	10,288	0.907	0.964
	VMAX	571	571	570	570	570	570	569	569	569	568	566	565	1.026	0.960
MAX ENDURANCE															
	KTAS	261	266	285	288	298	321	332	343	352	368	372	392	1.039	0.959
	FUEL FLOW	2297	2489	2686	2893	3101	3305	3511	3724	3946	4398	4864	5372	1.054	0.945
MAX RANGE															
	KTAS	343	365	367	369	378	389	397	415	419	430	446	463	1.039	0.959
	FUEL FLOW	2689	2948	3068	3194	3392	3617	3817	4121	4295	4701	5214	5761	1.054	0.945

Figure C4-3. (Sheet 28)

Subsonic Cruise — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	––––	––––	5848	5901	5967	6032	6098	6165	6365	6595	6831	7078	1.053	0.941
VMIN	–––	–––	181	192	204	216	227	239	264	290	315	339	1.039	0.961
180	3691	4543											1.157	0.867
210	2923	3354	3859	4508	5398								1.128	0.899
240	2639	2938	3278	3687	4148	4682	5345	6162					1.104	0.902
270	2587	2793	3041	3314	3635	3982	4403	4888	6139				1.081	0.916
300	2676	2842	3030	3234	3451	3723	4011	4326	5101	6193			1.063	0.930
330	2860	2984	3137	3302	3482	3689	3911	4139	4716	5417	6298		1.047	0.952
360	3127	3231	3345	3470	3618	3790	3979	4181	4628	5148	5796	6587	1.046	0.972
390	3489	3574	3670	3777	3899	4031	4181	4355	4736	5180	5680	6262	1.035	0.992
420	3930	4004	4085	4178	4286	4405	4531	4667	4975	5350	5791	6279	1.017	1.010
450	4496	4564	4642	4727	4820	4920	5030	5148	5409	5707	6082	6503	0.998	1.027
480	5213	5266	5329	5404	5487	5576	5672	5775	6005	6272	6575	6919	0.985	1.035
510	6065	6105	6151	6202	6267	6342	6426	6517	6717	6948	7220	7519	0.983	1.060
540	7238	7263	7294	7329	7368	7412	7489	7571	7750	7949	8220	8582	0.954	1.066
570														
600														
630														
660														
MIL	10,273	10,273	10,272	10,271	10,270	10,268	10,267	10,265	10,259	10,253	10,246	10,236	0.906	0.956
VMAX	562	562	562	562	561	561	561	560	559	558	557	555	1.026	0.959
	MAX ENDURANCE													
KTAS	260	271	281	291	302	315	323	331	349	366	382	397	1.039	0.959
FUEL FLOW	2579	2793	3009	3227	3450	3679	3907	4139	4616	5129	5669	6228	1.054	0.945
	MAX RANGE													
KTAS	341	354	367	369	372	385	395	406	426	432	459	462	1.039	0.959
FUEL FLOW	2948	3175	3407	3542	3707	3980	4228	4496	5041	5453	6198	6642	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **–––VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	––––	––––	5850	5907	5972	6040	6107	6176	6391	6625	6877	7155	1.053	0.940
VMIN	–––	–––	181	193	205	217	229	242	267	293	320	347	1.039	0.961
180	3760	4610											1.156	0.871
210	2986	3424	3943	4592	5504								1.124	0.898
240	2718	3019	3365	3777	4249	4786	5474						1.093	0.906
270	2689	2895	3143	3425	3748	4097	4531	5020	6302				1.078	0.919
300	2811	2978	3165	3368	3591	3865	4154	4483	5264	6392			1.060	0.934
330	3034	3159	3310	3475	3660	3871	4091	4318	4916	5624	6537		1.042	0.957
360	3346	3449	3563	3688	3847	4023	4211	4412	4864	5396	6059	6875	1.040	0.977
390	3760	3850	3951	4062	4188	4324	4473	4646	5034	5487	5988	6592	1.027	0.996
420	4280	4359	4447	4543	4650	4767	4893	5029	5339	5734	6178	6670	1.010	1.014
450	4945	5012	5088	5172	5264	5363	5471	5591	5861	6172	6548	6978	0.993	1.031
480	5753	5804	5865	5940	6024	6115	6213	6321	6562	6834	7136	7512	0.984	1.039
510	6722	6762	6809	6860	6927	7006	7090	7180	7380	7610	7938	8314	0.979	1.066
540	8094	8121	8154	8193	8237	8288	8384	8488	8714	8964	9241	9608	0.943	1.075
570														
600														
630														
660														
MIL	10,235	10,235	10,235	10,234	10,234	10,233	10,232	10,230	10,224	10,207	10,184	10,151	0.909	0.950
VMAX	555	555	555	555	555	555	554	554	553	551	548	543	1.017	0.959
	MAX ENDURANCE													
KTAS	257	269	279	290	300	310	320	329	347	364	379	395	1.039	0.959
FUEL FLOW	2670	2894	3120	3350	3591	3833	4073	4317	4832	5384	5953	6568	1.054	0.945
	MAX RANGE													
KTAS	331	343	354	361	369	380	391	402	426	430	445	459	1.039	0.959
FUEL FLOW	3040	3278	3506	3694	3922	4203	4488	4777	5413	5849	6480	7108	1.054	0.945

Figure C4-3. (Sheet 29)

Subsonic Cruise — 20,000 Feet

DATA BASIS ESTIMATED | **CONDITIONS:** | **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR													
	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
DRAG INDEX = 300	MIL		––––	5852	5912	5978	6048	6115	6188	6418	6662	6927	7254	1.053	0.940
	VMIN		–––	182	194	206	218	230	244	270	297	324	356	1.039	0.961
	180		4677											1.160	0.868
	210		3493	4027	4675	5610								1.133	0.889
	240		3099	3451	3867	4351	4891	5603						1.101	0.903
	270		2997	3248	3536	3860	4218	4659	5151					1.082	0.918
	300		3114	3300	3509	3731	4006	4298	4643	5431	6591			1.062	0.930
	330		3333	3484	3655	3844	4053	4272	4501	5117	5850	6777		1.045	0.959
	360		3669	3790	3924	4082	4257	4444	4645	5115	5644	6344	7164	1.038	0.977
	390		4141	4244	4359	4483	4618	4765	4942	5342	5800	6314	6937	1.025	0.996
	420		4727	4813	4908	5014	5133	5259	5395	5725	6124	6573	7102	1.010	1.018
	450		5460	5535	5620	5714	5816	5930	6055	6331	6640	7030	7523	0.993	1.031
	480		6355	6417	6496	6582	6676	6776	6884	7124	7417	7780	8200	0.983	1.038
	510		7433	7477	7527	7592	7673	7775	7888	8137	8425	8770	9148	0.976	1.085
	540		9159	9187	9221	9260	9305	9402	9506	9733				0.926	1.103
	570														
	600														
	630														
	660														
	MIL		10,174	10,173	10,171	10,169	10,167	10,161	10,154	10,137	10,111	10,018	9884	0.915	0.946
	VMAX		546	546	546	546	545	545	544	541	538	532	523	1.007	0.958
	MAX ENDURANCE														
	KTAS		268	279	289	300	310	319	329	346	363	379	394	1.039	0.959
	FUEL FLOW		2994	3231	3478	3731	3985	4237	4498	5057	5638	6257	6922	1.054	0.945
	MAX RANGE														
	KTAS		334	345	356	369	374	384	390	410	428	430	445	1.039	0.959
	FUEL FLOW		3370	3616	3880	4171	4405	4689	4938	5584	6242	6692	7441	1.054	0.945

*TEMPERATURE DEVIATION FROM STANDARD DAY. ———VMIN LESS THAN 180 KTAS.

	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
DRAG INDEX = 350	MIL			5854	5918	5986	6056	6126	6200	6447	6703	6996	7399	1.053	0.939
	VMIN			183	195	207	220	232	246	273	302	331	370	1.039	0.961
	180														
	210			4106	4759	5716								1.163	0.887
	240			3537	3956	4452	4995	5732						1.100	0.902
	270			3355	3646	3972	4341	4787	5294					1.091	0.916
	300			3438	3651	3871	4147	4451	4803	5611				1.059	0.933
	330			3666	3840	4028	4236	4454	4693	5318	6082			1.038	0.964
	360			4028	4161	4317	4491	4679	4886	5367	5898	6630		1.034	0.985
	390			4542	4655	4778	4914	5070	5252	5659	6117	6651	7281	1.024	0.997
	420			5184	5279	5384	5508	5643	5789	6118	6522	7006	7533	1.008	1.018
	450			6003	6090	6186	6289	6402	6527	6805	7143	7583	8073	0.991	1.032
	480			6983	7061	7147	7248	7356	7472	7766	8100	8470	8889	0.980	1.053
	510			8267	8326	8407	8504	8609	8721	8969	9255			0.961	1.056
	540														
	570														
	600														
	630														
	660														
	MIL			10,062	10,053	10,042	10,024	9996	9967	9901	9775	9529	9145	0.934	0.943
	VMAX			535	534	533	532	530	528	524	517	504	483	1.002	0.957
	MAX ENDURANCE														
	KTAS			278	289	300	310	319	328	346	363	379	394	1.039	0.959
	FUEL FLOW			3344	3605	3870	4137	4401	4687	5281	5895	6570	7275	1.054	0.945
	MAX RANGE														
	KTAS			343	353	363	369	373	381	400	420	430	430	1.039	0.959
	FUEL FLOW			3797	4071	4350	4588	4827	5131	5798	6527	7158	7678	1.054	0.945

Figure C4-3. (Sheet 30)

Subsonic Cruise — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 400	**MIL**			5856	5924	5993	6064	6137	6220	6477	6748	7097	7721	1.053	0.939
	VMIN			184	196	209	221	234	248	277	307	341	392	1.039	0.962
	180														
	210			4184	4843	5821								1.164	0.888
	240			3624	4053	4553	5110	5861						1.098	0.904
	270			3464	3757	4084	4467	4914	5443					1.089	0.919
	300			3581	3792	4011	4289	4609	4963	5803				1.058	0.936
	330			3853	4025	4212	4418	4648	4890	5519	6318			1.036	0.968
	360			4267	4398	4553	4728	4925	5141	5618	6168	6916		1.029	0.988
	390			4839	4957	5087	5228	5383	5569	5977	6457	7000		1.016	1.006
	420			5567	5668	5780	5906	6040	6186	6519	6952	7445	7965	1.003	1.020
	450			6480	6566	6660	6765	6882	7012	7336	7699	8136		0.986	1.046
	480			7595	7691	7796	7909	8032	8164	8457	8791			0.968	1.058
	510			9106	9162	9242	9338							0.947	1.062
	540														
	570														
	600														
	630														
	660														
	MIL			9793	9771	9740	9695	9643	9584	9423	9193	8907	8161	0.949	0.941
	VMAX			518	517	515	513	510	507	499	486	469	423	1.000	0.956
	MAX ENDURANCE														
	KTAS			277	286	295	305	318	327	342	361	374	393	1.039	0.959
	FUEL FLOW			3459	3732	4008	4287	4579	4881	5502	6168	6887	7626	1.054	0.945
	MAX RANGE														
	KTAS			334	344	354	366	368	374	391	404	420	422	1.039	0.959
	FUEL FLOW			3903	4185	4474	4808	5033	5317	5995	6666	7447	8005	1.054	0.945

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure C4-3. (Sheet 31)

Subsonic Cruise — 25,000 Feet

DATA BASIS ESTIMATED

CONDITIONS:

- **STANDARD DAY TEMPERATURE (−35°C)**

ENGINE F100-PW-229/CFT

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX	KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
0	**MIL**	−−−−	4811	4876	4946	5014	5082	5160	5256	5349	5445	5537	5709	1.060	0.936
0	**VMIN**	−−−	180	193	207	220	233	247	260	274	287	300	326	1.040	0.960
0	180	3416												1.189	0.845
0	210	2472	2954	3573	4484									1.163	0.867
0	240	2098	2410	2784	3237	3770	4494							1.125	0.881
0	270	1937	2152	2403	2701	3053	3474	3977	4605					1.119	0.898
0	300	1887	2057	2241	2457	2706	2985	3319	3679	4151	4684			1.098	0.912
0	330	1919	2059	2214	2387	2590	2799	3043	3325	3627	3969	4366	5452	1.079	0.920
0	360	2018	2126	2247	2393	2561	2744	2945	3167	3403	3672	3957	4646	1.057	0.925
0	390	2143	2232	2330	2438	2559	2716	2884	3064	3271	3500	3735	4268	1.058	0.946
0	420	2295	2368	2449	2538	2639	2760	2890	3041	3207	3399	3603	4057	1.054	0.977
0	450	2507	2568	2636	2711	2797	2901	3014	3135	3265	3408	3586	3973	1.039	0.993
0	480	2764	2815	2873	2936	3015	3104	3200	3306	3418	3538	3666	3984	1.027	1.019
0	510	3129	3168	3216	3279	3349	3424	3505	3593	3686	3792	3905	4171	1.004	1.051
0	540	3713	3751	3793	3839	3897	3966	4040	4119	4203	4292	4387	4649	0.956	1.289
0	570	5544	5587	5637	5693	5755	5822	5909	6002	6101	6207	6320	6564	0.796	1.400
0	600	8679	8734	8794	8874	8985	9106	9236	9383	9556				0.754	1.378
0	630														
0	660														
0	**MIL**	9611	9601	9590	9578	9562	9545	9527	9507	9480	9449	9417	9346	0.881	0.941
0	**VMAX**	613	612	611	610	609	607	605	604	602	600	599	595	1.019	0.956
0	**MAX ENDURANCE**														
0	**KTAS**	301	310	325	341	377	391	404	417	421	430	442	460	1.041	0.957
0	**FUEL FLOW**	1887	2049	2213	2381	2554	2716	2878	3041	3206	3393	3583	3969	1.056	0.942
0	**MAX RANGE**														
0	**KTAS**	421	421	423	440	451	459	474	482	482	482	487	511	1.041	0.957
0	**FUEL FLOW**	2302	2375	2463	2646	2804	2959	3158	3316	3427	3546	3715	4182	1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX	KTAS \ GW−1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
50	**MIL**	−−−−	4815	4882	4951	5021	5090	5175	5272	5368	5465	5557	5739	1.058	0.936
50	**VMIN**	−−−	181	194	208	221	235	249	263	276	290	303	330	1.040	0.960
50	180	3486												1.184	0.842
50	210	2526	3016	3651	4585									1.165	0.868
50	240	2161	2477	2860	3316	3865	4619							1.122	0.884
50	270	2014	2231	2489	2788	3150	3574	4095	4751					1.114	0.901
50	300	1988	2157	2343	2565	2816	3106	3442	3803	4297	4860			1.094	0.918
50	330	2051	2190	2344	2526	2729	2936	3195	3478	3781	4143	4542		1.069	0.931
50	360	2186	2293	2412	2568	2738	2920	3128	3356	3591	3861	4161	4858	1.054	0.933
50	390	2345	2433	2533	2650	2780	2935	3103	3297	3508	3734	3967	4518	1.050	0.955
50	420	2533	2605	2697	2798	2909	3029	3158	3317	3498	3691	3894	4358	1.043	0.985
50	450	2796	2866	2945	3032	3127	3231	3344	3468	3610	3766	3944	4330	1.026	1.001
50	480	3130	3189	3257	3332	3414	3503	3600	3710	3833	3964	4104	4420	1.015	1.024
50	510	3599	3642	3691	3754	3822	3897	3982	4077	4179	4297	4422	4694	0.997	1.066
50	540	4361	4394	4434	4479	4541	4616	4697	4784	4876	4974	5077	5347	0.941	1.341
50	570	6847	6892	6944	7004	7069	7140	7233	7334	7441	7555	7676	7945	0.763	1.426
50	600														
50	630														
50	660														
50	**MIL**	9194	9185	9174	9161	9146	9131	9113	9092	9069	9045	9019	8964	0.930	0.939
50	**VMAX**	588	588	587	586	586	585	584	583	582	581	580	577	1.029	0.956
50	**MAX ENDURANCE**														
50	**KTAS**	294	303	316	331	343	368	383	396	407	419	421	440	1.041	0.957
50	**FUEL FLOW**	1985	2156	2334	2526	2722	2918	3101	3295	3492	3691	3893	4324	1.056	0.942
50	**MAX RANGE**														
50	**KTAS**	396	420	421	421	428	441	451	459	472	481	482	493	1.041	0.957
50	**FUEL FLOW**	2380	2604	2705	2807	2961	3163	3354	3533	3769	3975	4115	4512	1.056	0.942

Figure C4-3. (Sheet 32)

Subsonic Cruise — 25,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	−−−−	4818	4887	4957	5028	5097	5190	5287	5388	5580	5770	5967	1.051	0.936
VMIN	−−−	182	195	209	223	236	251	265	279	307	335	364	1.042	0.960
180	3549												1.182	0.841
210	2580	3078	3728	4687									1.167	0.870
240	2226	2544	2937	3395	3960	4742							1.119	0.887
270	2091	2314	2575	2880	3246	3675	4214	4897					1.110	0.905
300	2089	2257	2451	2673	2926	3228	3566	3937	4442				1.084	0.925
330	2183	2321	2483	2666	2867	3083	3346	3631	3938	4718			1.058	0.937
360	2354	2464	2591	2746	2914	3102	3320	3546	3779	4370	5096		1.046	0.941
390	2550	2646	2754	2872	3000	3158	3340	3536	3745	4211	4768	5481	1.045	0.960
420	2797	2878	2968	3069	3179	3306	3447	3611	3791	4189	4665	5183	1.038	0.991
450	3129	3199	3277	3363	3461	3575	3697	3829	3970	4302	4707	5164	1.020	1.007
480	3530	3588	3657	3738	3828	3926	4031	4147	4270	4541	4867	5269	1.008	1.028
510	4092	4137	4188	4257	4332	4413	4501	4596	4697	4943	5227	5559	0.988	1.073
540	5076	5107	5141	5181	5239	5313	5393	5479	5570	5777	6087	6432	0.925	1.396
570	8373	8426	8490	8563	8643	8731							0.725	1.497
600														
630														
660														
MIL	8882	8875	8866	8856	8844	8830	8813	8794	8773	8726	8673	8595	0.958	0.939
VMAX	573	573	572	572	571	571	570	569	568	566	563	559	1.031	0.956
	MAX ENDURANCE													
KTAS	288	301	301	310	322	334	370	381	392	413	422	442	1.041	0.957
FUEL FLOW	2080	2257	2450	2656	2863	3082	3316	3530	3745	4185	4663	5161	1.056	0.942
	MAX RANGE													
KTAS	375	388	403	418	421	421	432	445	452	472	488	498	1.041	0.957
FUEL FLOW	2449	2634	2843	3051	3188	3316	3542	3783	3983	4466	4940	5426	1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.** **−−−VMIN LESS THAN 180 KTAS.**

DRAG INDEX = 150

GW–1000 LB / KTAS	20	22	24	26	28	30	32	34	36	40	44	48	+20°C	−20°C
MIL	−−−−	4821	4893	4963	5036	5107	5205	5305	5409	5609	5803	6037	1.050	0.936
VMIN	−−−	182	196	210	224	238	253	267	282	311	340	374	1.042	0.960
180	3611												1.178	0.840
210	2634	3140	3805										1.138	0.882
240	2292	2611	3013	3474	4055	4866							1.116	0.890
270	2167	2398	2660	2976	3343	3783	4331	5043					1.106	0.908
300	2190	2361	2560	2781	3046	3350	3689	4079	4587				1.078	0.929
330	2315	2459	2624	2806	3009	3234	3497	3784	4108	4916			1.052	0.943
360	2531	2644	2770	2924	3098	3295	3511	3736	3967	4580	5343		1.038	0.948
390	2775	2870	2977	3094	3231	3399	3581	3775	3982	4464	5023	5774	1.037	0.966
420	3071	3151	3242	3352	3473	3603	3744	3906	4085	4503	4972	5525	1.030	0.996
450	3467	3543	3627	3721	3823	3936	4058	4190	4330	4680	5090	5558	1.012	1.011
480	3957	4019	4094	4176	4265	4363	4469	4584	4708	4997	5335	5738	0.999	1.031
510	4618	4661	4710	4778	4852	4933	5021	5116	5225	5498	5801	6136	0.983	1.085
540	5806	5834	5867	5904	5966	6049	6138	6233	6335	6557	6877	7292	0.914	1.112
570														
600														
630														
660														
MIL	8634	8627	8619	8611	8601	8588	8573	8556	8539	8501	8448	8376	0.973	0.939
VMAX	561	561	561	560	560	559	558	558	557	555	552	549	1.034	0.957
	MAX ENDURANCE													
KTAS	274	288	300	305	317	328	339	349	367	389	408	422	1.041	0.957
FUEL FLOW	2166	2359	2560	2770	2992	3232	3475	3720	3967	4464	4968	5523	1.056	0.942
	MAX RANGE													
KTAS	342	372	387	400	408	420	421	429	444	466	482	492	1.041	0.957
FUEL FLOW	2394	2731	2951	3167	3364	3606	3755	3971	4267	4827	5351	5863	1.056	0.942

Figure C4-3. (Sheet 33)

Subsonic Cruise — 25,000 Feet

DATA BASIS ESTIMATED | **CONDITIONS:** | **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	4824	4898	4970	5043	5118	5220	5326	5431	5639	5851	6129	6597	1.039	0.936
VMIN	183	197	212	226	240	255	270	285	316	347	387	439	1.045	0.960
180														
210	3201	3882											1.171	0.873
240	2678	3089	3553	4149									1.114	0.892
270	2482	2746	3071	3440	3898	4455							1.102	0.911
300	2471	2668	2889	3167	3472	3812	4220	4751					1.077	0.930
330	2602	2765	2947	3162	3385	3649	3939	4281	5122				1.052	0.948
360	2825	2949	3110	3292	3488	3703	3926	4170	4789	5589			1.032	0.952
390	3095	3207	3335	3475	3641	3821	4014	4233	4717	5306	6067		1.034	0.969
420	3446	3542	3651	3771	3900	4040	4207	4399	4817	5298	5868		1.027	0.999
450	3908	3992	4084	4185	4299	4422	4562	4712	5065	5475	6003	6581	1.012	1.012
480	4456	4531	4613	4703	4806	4919	5043	5176	5466	5806	6285	6813	1.000	1.030
510	5193	5244	5318	5399	5487	5582	5684	5794	6069	6403	6808	7311	0.981	1.090
540	6639	6665	6696	6754	6837	6927	7037	7159	7426	7820			0.899	1.126
570														
600														
630														
660														
MIL	8442	8436	8430	8423	8411	8397	8383	8367	8331	8276	8174	7982	0.985	0.939
VMAX	552	552	551	551	550	550	549	548	546	544	538	526	1.035	0.957
	MAX ENDURANCE													
KTAS	282	294	305	316	327	338	349	359	380	399	417	439	1.041	0.957
FUEL FLOW	2454	2664	2882	3127	3380	3635	3893	4167	4704	5265	5867	6532	1.056	0.942
	MAX RANGE													
KTAS	345	373	381	393	406	418	426	439	452	481	482	494	1.041	0.957
FUEL FLOW	2697	3049	3251	3505	3758	4018	4259	4573	5088	5819	6305	6979	1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	4830	4904	4977	5050	5131	5236	5347	5453	5671	5916	6275		1.046	0.936
VMIN	184	198	213	227	242	257	273	289	320	356	408		1.044	0.960
180														
210	3263	3958											1.168	0.871
240	2748	3166	3638	4243									1.111	0.894
270	2566	2833	3166	3536	4013	4589							1.100	0.915
300	2581	2777	3005	3287	3593	3947	4361	4922					1.074	0.933
330	2744	2907	3097	3314	3536	3800	4108	4453	5328				1.047	0.953
360	3006	3139	3306	3487	3682	3894	4127	4377	5013	5835			1.029	0.958
390	3338	3453	3580	3718	3883	4062	4270	4492	4970	5594			1.025	0.981
420	3748	3843	3950	4069	4204	4353	4525	4716	5132	5650	6210		1.021	1.004
450	4274	4357	4452	4559	4680	4810	4950	5099	5451	5924	6447		1.003	1.020
480	4906	4986	5074	5170	5275	5388	5512	5645	5961	6367	6848		0.991	1.037
510	5769	5817	5890	5971	6058	6153	6257	6388	6721	7092	7500		0.972	1.116
540	7556	7580	7610	7676	7774	7879	7992						0.877	1.159
570														
600														
630														
660														
MIL	8297	8293	8290	8283	8272	8259	8245	8220	8147	8024	7735		0.992	0.940
VMAX	545	544	544	544	543	543	542	540	536	528	513		1.030	0.957
	MAX ENDURANCE													
KTAS	280	293	305	316	327	338	348	358	378	397	414		1.041	0.957
FUEL FLOW	2545	2766	3000	3262	3527	3795	4074	4372	4936	5566	6197		1.056	0.942
	MAX RANGE													
KTAS	344	354	374	387	403	412	421	425	451	455	470		1.041	0.957
FUEL FLOW	2853	3083	3414	3693	4000	4264	4539	4764	5468	5985	6695		1.056	0.942

Figure C4-3. (Sheet 34)

Subsonic Cruise — 25,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL		4909	4984	5059	5146	5255	5368	5480	5705	6011			1.043	0.936
VMIN		200	214	229	245	260	276	292	325	370			1.044	0.960
180														
210		4035											1.191	0.862
240		3242	3730	4342									1.127	0.888
270		2926	3262	3633	4129	4730							1.110	0.912
300		2885	3124	3408	3715	4088	4503	5093					1.080	0.933
330		3056	3251	3467	3687	3954	4279	4626	5534				1.058	0.946
360		3337	3502	3682	3875	4093	4336	4584	5256				1.028	0.961
390		3699	3825	3961	4130	4324	4531	4751	5254	5883			1.024	0.982
420		4145	4260	4387	4525	4673	4844	5033	5488	6002			1.017	1.007
450		4745	4843	4949	5069	5199	5338	5491	5899	6373			0.999	1.026
480		5455	5543	5640	5745	5867	6017	6176	6525	6930			0.986	1.049
510		6421	6508	6603	6707	6820	6941	7071	7407				0.963	1.054
540														
570														
600														
630														
660														
MIL		8135	8128	8110	8087	8061	8024	7967	7785	7398			0.999	0.938
VMAX		535	535	533	532	530	528	525	515	495			1.025	0.956
MAX ENDURANCE														
KTAS		292	301	312	322	332	343	353	377	396			1.041	0.957
FUEL FLOW		2867	3122	3396	3672	3954	4263	4573	5197	5864			1.056	0.942
MAX RANGE														
KTAS		343	371	384	389	402	414	421	431	446			1.041	0.957
FUEL FLOW		3170	3607	3894	4121	4446	4772	5047	5615	6321			1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 350

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL			4991	5069	5161	5276	5391	5511	5765				1.042	0.936
VMIN			216	231	247	263	280	297	334				1.045	0.961
180														
210														
240			3821	4457									1.145	0.884
270			3357	3734	4243	4872							1.111	0.901
300			3243	3528	3837	4228	4650	5263					1.080	0.929
330			3406	3620	3838	4123	4451	4804					1.053	0.949
360			3698	3876	4075	4304	4545	4792	5500				1.023	0.965
390			4070	4218	4394	4587	4792	5014	5547				1.019	0.987
420			4583	4709	4846	4993	5165	5379	5848				1.012	1.016
450			5234	5340	5460	5609	5772	5945	6351				0.993	1.035
480			6054	6170	6296	6431	6581	6740					0.977	1.053
510			7195	7290	7393	7505							0.951	1.060
540														
570														
600														
630														
660														
MIL			7864	7819	7769	7714	7614	7481	7178				1.001	0.934
VMAX			519	517	514	512	506	499	480				1.020	0.954
MAX ENDURANCE														
KTAS			301	306	317	328	338	348	377				1.041	0.957
FUEL FLOW			3242	3524	3811	4122	4445	4768	5464				1.056	0.942
MAX RANGE														
KTAS			349	374	380	392	404	408	421				1.041	0.957
FUEL FLOW			3576	4017	4275	4611	4949	5213	5865				1.056	0.942

Figure C4-3. (Sheet 35)

Subsonic Cruise — 25,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−35°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL			4998	5079	5176	5298	5418	5544	5843				1.040	0.936
VMIN			217	233	249	266	283	301	346				1.046	0.961
180														
210														
240			3913	4572									1.148	0.886
270			3452	3842	4358	5013							1.109	0.904
300			3361	3649	3974	4369	4818						1.075	0.938
330			3560	3773	3996	4292	4622	5007					1.048	0.954
360			3894	4078	4288	4515	4754	5014	5743				1.019	0.971
390			4337	4483	4658	4849	5061	5308	5840				1.015	0.994
420			4906	5031	5170	5338	5529	5742	6208				1.005	1.021
450			5653	5776	5915	6065	6226	6399					0.985	1.040
480			6618	6734	6860	6995							0.967	1.046
510														
540														
570														
600														
630														
660														
MIL			7458	7397	7331	7246	7137	7004	6551				1.012	0.932
VMAX			498	495	490	484	477	468	435				1.021	0.952
MAX ENDURANCE														
KTAS			299	301	312	322	332	346	375				1.041	0.957
FUEL FLOW			3361	3647	3953	4287	4622	4978	5730				1.056	0.942
MAX RANGE														
KTAS			341	351	372	384	392	399	421				1.041	0.957
FUEL FLOW			3669	3969	4419	4770	5081	5429	6225				1.056	0.942

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure C4-3. (Sheet 36)

Subsonic Cruise — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	**MIL**	3854	3920	3986	4064	4150	4235	4319	4413	4511	4605	4699	4969	1.066	0.933
	VMIN	196	213	229	246	262	279	295	310	326	341	355	388	1.041	0.958
	180														
	210	2882												1.192	0.847
	240	2220	2661	3239										1.150	0.870
	270	1914	2199	2565	2996	3594								1.133	0.881
	300	1789	2003	2246	2548	2883	3335	3892						1.108	0.902
	330	1778	1946	2154	2379	2649	2945	3288	3694	4260				1.088	0.905
	360	1815	1953	2124	2327	2548	2782	3056	3348	3696	4100	4572		1.081	0.915
	390	1912	2017	2142	2305	2488	2687	2913	3155	3417	3722	4064	4921	1.079	0.928
	420	2039	2129	2228	2345	2491	2660	2840	3045	3279	3525	3781	4423	1.072	0.945
	450	2191	2266	2350	2448	2568	2698	2845	3013	3204	3411	3636	4145	1.059	0.969
	480	2397	2460	2536	2625	2727	2839	2960	3089	3239	3419	3608	4020	1.017	1.005
	510	2718	2779	2848	2923	3005	3094	3206	3331	3465	3607	3760	4131	0.988	1.088
	540	3448	3496	3566	3645	3731	3824	3924	4034	4163	4299	4446	4795	0.881	1.328
	570	5367	5435	5513	5607	5718	5838	5967	6105	6252	6434	6646		0.740	1.414
	600														
	630														
	660														
	MIL	7201	7163	7124	7105	7082	7057	7029	6999	6968	6935	6896	6814	1.005	0.936
	VMAX	593	591	589	588	586	585	583	581	579	576	574	568	1.037	0.955
	MAX ENDURANCE														
	KTAS	322	338	365	385	402	419	433	442	464	471	471	475	1.043	0.955
	FUEL FLOW	1775	1939	2123	2304	2484	2660	2835	3012	3198	3386	3583	4017	1.059	0.940
	MAX RANGE														
	KTAS	432	442	458	471	471	471	472	486	487	501	503	516	1.043	0.955
	FUEL FLOW	2093	2224	2390	2552	2660	2777	2904	3127	3280	3524	3708	4173	1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
DRAG INDEX = 50	**MIL**	3858	3925	3992	4075	4161	4250	4337	4438	4538	4634	4754	5048	1.066	0.933
	VMIN	197	214	231	248	265	282	298	314	330	345	362	398	1.041	0.958
	180														
	210	2944												1.189	0.847
	240	2282	2725	3317										1.151	0.873
	270	1982	2275	2643	3090	3713								1.129	0.885
	300	1875	2090	2341	2647	2983	3453	4036						1.103	0.907
	330	1882	2065	2272	2502	2776	3073	3435	3850					1.076	0.917
	360	1946	2099	2281	2483	2706	2942	3216	3522	3880	4308			1.067	0.923
	390	2076	2189	2329	2497	2679	2882	3114	3353	3620	3943	4297		1.069	0.942
	420	2239	2335	2451	2578	2723	2890	3086	3297	3527	3770	4045	4721	1.064	0.955
	450	2436	2523	2622	2732	2852	2981	3134	3316	3511	3718	3940	4475	1.052	0.979
	480	2714	2788	2871	2962	3064	3180	3310	3451	3606	3786	3975	4413	1.012	1.016
	510	3119	3184	3259	3341	3430	3528	3644	3771	3906	4053	4220	4623	0.978	1.105
	540	4115	4162	4229	4306	4389	4483	4591	4713	4864	5023	5191	5567	0.858	1.168
	570	6793	6879											0.700	1.265
	600														
	630														
	660														
	MIL	6866	6854	6841	6826	6807	6787	6765	6742	6718	6688	6646	6551	1.009	0.934
	VMAX	572	571	570	569	568	566	565	563	562	560	557	551	1.039	0.954
	MAX ENDURANCE														
	KTAS	315	330	329	369	383	401	414	427	440	449	461	471	1.043	0.955
	FUEL FLOW	1870	2065	2272	2479	2677	2875	3084	3295	3505	3718	3930	4395	1.059	0.940
	MAX RANGE														
	KTAS	395	423	440	446	463	471	471	472	483	496	501	501	1.043	0.955
	FUEL FLOW	2103	2349	2556	2709	2930	3100	3230	3377	3629	3894	4112	4521	1.059	0.940

Figure C4-3. (Sheet 37)

Subsonic Cruise — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	+20°C	−20°C
DRAG INDEX = 100	MIL	3862	3931	3998	4086	4175	4265	4359	4465	4566	4825	5152	5595	1.066	0.932
	VMIN	198	215	232	250	267	285	301	318	335	371	410	451	1.040	0.959
	180														
	210	3005												1.193	0.847
	240	2343	2789	3399										1.152	0.876
	270	2050	2352	2722	3185	3832								1.126	0.888
	300	1962	2177	2438	2746	3093	3571							1.095	0.918
	330	1996	2185	2391	2627	2903	3203	3583	4016					1.071	0.923
	360	2092	2257	2439	2641	2867	3102	3377	3704	4066				1.053	0.932
	390	2257	2381	2522	2689	2875	3086	3314	3555	3833	4543			1.057	0.953
	420	2465	2569	2684	2811	2960	3142	3339	3548	3775	4311	5033		1.052	0.965
	450	2720	2808	2907	3016	3142	3283	3442	3624	3818	4271	4825		1.037	0.989
	480	3051	3127	3214	3312	3423	3545	3677	3818	3974	4364	4820	5441	1.003	1.019
	510	3555	3621	3696	3778	3867	3964	4087	4227	4375	4702	5148	5711	0.971	1.127
	540	4825	4875	4946	5030	5120	5219	5324	5446	5625	6046			0.831	1.202
	570														
	600														
	630														
	660														
	MIL	6657	6647	6635	6618	6600	6580	6558	6535	6505	6432	6349	6192	1.015	0.933
	VMAX	558	557	556	555	554	553	551	550	548	543	537	525	1.039	0.954
	MAX ENDURANCE														
	KTAS	295	307	321	334	374	386	397	409	423	451	471	471	1.043	0.955
	FUEL FLOW	1961	2166	2384	2620	2860	3085	3312	3542	3775	4271	4785	5425	1.059	0.940
	MAX RANGE														
	KTAS	380	402	419	435	442	456	471	471	473	483	501	501	1.043	0.955
	FUEL FLOW	2195	2448	2679	2902	3082	3324	3581	3728	3916	4390	4986	5551	1.059	0.940

*TEMPERATURE DEVIATION FROM STANDARD DAY.

	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	+20°C	−20°C
DRAG INDEX = 150	MIL	3867	3936	4007	4097	4190	4281	4384	4492	4600	4907	5320		1.066	0.933
	VMIN	199	217	234	252	270	288	306	323	340	381	426		1.040	0.959
	180														
	210	3067												1.198	0.849
	240	2404	2859	3497										1.150	0.877
	270	2119	2429	2801	3279									1.120	0.902
	300	2050	2264	2536	2845	3208	3706							1.091	0.922
	330	2117	2305	2514	2752	3030	3343	3730	4188					1.066	0.929
	360	2252	2416	2597	2803	3029	3261	3552	3886	4272				1.046	0.940
	390	2453	2575	2716	2887	3081	3290	3517	3766	4052	4799			1.049	0.961
	420	2701	2804	2920	3057	3215	3396	3591	3803	4047	4593			1.038	0.979
	450	3006	3097	3203	3322	3452	3592	3751	3932	4139	4608	5215		1.026	0.995
	480	3410	3490	3580	3679	3790	3912	4044	4189	4362	4772	5290		0.996	1.029
	510	3992	4062	4142	4231	4328	4434	4563	4704	4855	5235	5756		0.961	1.156
	540	5597	5653	5738	5838	5947	6066	6194						0.799	1.242
	570														
	600														
	630														
	660														
	MIL	6484	6476	6465	6451	6437	6421	6403	6382	6352	6285	6146		1.021	0.934
	VMAX	546	546	545	544	543	542	541	540	537	533	520		1.040	0.954
	MAX ENDURANCE														
	KTAS	295	307	321	334	346	361	375	390	402	436	445		1.043	0.955
	FUEL FLOW	2043	2259	2498	2749	3008	3261	3508	3766	4034	4587	5215		1.059	0.940
	MAX RANGE														
	KTAS	366	387	408	414	430	443	456	471	471	483	483		1.043	0.955
	FUEL FLOW	2289	2557	2831	3016	3279	3531	3798	4080	4266	4803	5317		1.059	0.940

Figure C4-3. (Sheet 38)

Subsonic Cruise — 30,000 Feet

DATA BASIS ESTIMATED | **CONDITIONS:** | **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (−44°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KTAS \ GW−1000 LB	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	**MIL**	3942	4015	4108	4206	4299	4411	4521	4650	5026	5767			1.066	0.931
	VMIN	218	236	254	273	291	310	327	348	395	465			1.040	0.959
	180														
	210														
	240	2933	3596											1.172	0.870
	270	2505	2880	3374										1.128	0.895
	300	2359	2634	2944	3324	3844								1.092	0.921
	330	2426	2641	2877	3157	3489	3888	4359						1.069	0.928
	360	2575	2760	2967	3191	3423	3732	4072	4480					1.050	0.945
	390	2772	2917	3094	3286	3495	3730	3988	4279					1.041	0.968
	420	3051	3176	3314	3470	3651	3851	4080	4322	4901				1.035	0.981
	450	3407	3513	3632	3762	3902	4068	4266	4478	4986				1.020	1.004
	480	3858	3947	4046	4158	4294	4440	4597	4770	5230	5785			0.996	1.035
	510	4536	4617	4706	4803	4909	5055	5232	5420	5832				0.954	1.056
	540														
	570														
	600														
	630														
	660														
	MIL	6354	6344	6331	6318	6303	6286	6263	6222	6092	5949			1.025	0.934
	VMAX	538	537	536	535	534	533	531	528	515	484			1.041	0.955
	MAX ENDURANCE														
	KTAS	307	319	330	341	358	372	383	393	414	465			1.043	0.955
	FUEL FLOW	2356	2613	2877	3149	3421	3699	3979	4269	4896	5673			1.059	0.940
	MAX RANGE														
	KTAS	379	395	410	425	439	452	464	471	472	483			1.043	0.955
	FUEL FLOW	2687	2951	3225	3505	3788	4084	4388	4657	5125	5821			1.059	0.940
DRAG INDEX = 250	**MIL**	3948	4026	4122	4221	4322	4439	4566	4720	5213				1.066	0.933
	VMIN	220	238	257	276	296	314	335	358	416				1.040	0.959
	180														
	210														
	240	3007	3695											1.177	0.873
	270	2582	2965	3470										1.126	0.896
	300	2455	2731	3046	3439	3982								1.092	0.924
	330	2552	2767	3003	3291	3635	4054							1.059	0.940
	360	2739	2926	3130	3352	3601	3913	4277	4689					1.045	0.952
	390	2978	3126	3302	3494	3709	3955	4215	4518					1.034	0.974
	420	3310	3434	3571	3726	3917	4130	4359	4615	5212				1.029	0.988
	450	3718	3824	3942	4081	4234	4407	4606	4838	5387				1.012	1.010
	480	4233	4332	4442	4565	4701	4848	5019	5228	5726				0.987	1.048
	510	5021	5121	5231	5351	5481	5644	5823						0.933	1.077
	540														
	570														
	600														
	630														
	660														
	MIL	6258	6248	6227	6203	6176	6140	6088	6050	5966				1.030	0.933
	VMAX	531	530	528	526	523	520	514	508	487				1.038	0.953
	MAX ENDURANCE														
	KTAS	301	312	323	337	358	369	381	393	417				1.043	0.955
	FUEL FLOW	2455	2723	2999	3288	3598	3891	4194	4511	5199				1.059	0.940
	MAX RANGE														
	KTAS	375	390	403	416	428	442	447	456	471				1.043	0.955
	FUEL FLOW	2845	3124	3405	3689	3985	4319	4574	4897	5595				1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure C4-3. (Sheet 39)

Subsonic Cruise — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
DRAG INDEX = 300	MIL		4036	4137	4238	4349	4472	4624	4839					1.066	0.930
	VMIN		240	260	279	300	319	344	372					1.040	0.959
	180														
	210														
	240														
	270		3056	3582										1.135	0.885
	300		2829	3159	3555									1.088	0.926
	330		2893	3128	3436	3784	4224							1.063	0.935
	360		3091	3294	3527	3781	4100	4483						1.042	0.957
	390		3334	3511	3710	3938	4184	4452	4769					1.034	0.978
	420		3692	3833	4002	4199	4411	4660	4934					1.023	0.990
	450		4150	4280	4422	4576	4759	4988	5239					1.010	1.019
	480		4740	4849	4979	5145	5323	5515	5724					0.982	1.061
	510		5709	5819										0.923	1.090
	540														
	570														
	600														
	630														
	660														
	MIL		6106	6084	6065	6042	6013	5988	5958					1.023	0.951
	VMAX		517	514	510	506	501	494	485					1.035	0.957
	MAX ENDURANCE														
	KTAS		304	318	331	342	369	381	392					1.043	0.955
	FUEL FLOW		2828	3116	3436	3768	4084	4417	4766					1.059	0.940
	MAX RANGE														
	KTAS		379	390	403	416	425	438	442					1.043	0.955
	FUEL FLOW		3236	3512	3823	4153	4456	4832	5140					1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

	KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
DRAG INDEX = 350	MIL			4153	4259	4377	4524	4710						1.066	0.931
	VMIN			263	284	304	328	357						1.040	0.959
	180														
	210														
	240														
	270			3698										1.127	0.875
	300			3273	3685									1.099	0.923
	330			3259	3580	3941	4394							1.069	0.936
	360			3464	3708	3962	4303	4690						1.049	0.960
	390			3730	3940	4170	4421	4706						1.027	0.982
	420			4116	4285	4485	4722	4985						1.016	1.003
	450			4623	4777	4955	5159	5394						0.998	1.029
	480			5324	5474	5640								0.970	1.042
	510														
	540														
	570														
	600														
	630														
	660														
	MIL			6000	5987	5968	5908	5777						1.003	0.944
	VMAX			498	493	488	479	466						1.022	0.955
	MAX ENDURANCE														
	KTAS			315	325	339	369	380						1.043	0.955
	FUEL FLOW			3241	3578	3931	4294	4652						1.059	0.940
	MAX RANGE														
	KTAS			383	393	410	415	426						1.043	0.955
	FUEL FLOW			3655	3975	4369	4664	5050						1.059	0.940

Figure C4-3. (Sheet 40)

Subsonic Cruise — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400	KTAS \ GW−1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
		TOTAL FUEL FLOW LB/HR													
	MIL			4169	4282	4413	4590	4895						1.065	0.931
	VMIN			266	288	310	338	379						1.037	0.962
	180														
	210														
	240														
	270			3813										1.136	0.876
	300			3387	3819									1.102	0.926
	330			3400	3725	4109								1.056	0.943
	360			3647	3891	4154	4507							1.035	0.969
	390			3962	4174	4410	4680	4961						1.024	0.991
	420			4401	4582	4806	5049							1.008	1.014
	450			5011	5180	5362								0.983	1.027
	480														
	510														
	540														
	570														
	600														
	630														
	660														
	MIL			5909	5853	5725	5526	5057						0.990	0.925
	VMAX			479	472	462	445	399						1.012	0.948
	MAX ENDURANCE														
	KTAS			310	322	336	364	379						1.043	0.955
	FUEL FLOW			3366	3718	4105	4506	4886						1.059	0.940
	MAX RANGE														
	KTAS			372	382	390	400	399						1.043	0.955
	FUEL FLOW			3755	4088	4413	4790	5046						1.059	0.940

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure C4-3. (Sheet 41)

Subsonic Cruise — 35,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	3188	3274	3358	3444	3542	3638	3737	3875	4012	4155	4314	4621	1.066	0.932
VMIN	234	254	275	295	314	333	351	371	392	412	432	472	1.043	0.955
180														
210														
240	2778												1.173	0.836
270	2150	2630											1.163	0.860
300	1887	2191	2576	3114									1.145	0.887
330	1788	2018	2290	2619	3010								1.106	0.900
360	1756	1942	2164	2417	2713	3054	3490						1.093	0.909
390	1758	1916	2093	2318	2560	2832	3147	3511					1.084	0.916
420	1822	1944	2091	2265	2469	2698	2944	3234	3577	3977			1.092	0.928
450	1934	2039	2155	2285	2451	2638	2837	3067	3340	3633	3991		1.083	0.952
480	2111	2199	2300	2414	2540	2691	2866	3055	3259	3508	3779	4457	1.053	0.991
510	2408	2486	2571	2675	2794	2932	3080	3250	3446	3665	3915	4536	1.000	1.152
540	3274	3360	3455	3560	3675	3810	3954	4129	4321	4544	4847		0.841	1.236
570	5296	5417	5579	5760									0.698	1.311
600														
630														
660														
MIL	5743	5709	5681	5651	5619	5584	5544	5500	5455	5408	5348	5144	1.005	0.929
VMAX	578	576	573	571	568	566	562	559	555	552	547	529	1.039	0.952
MAX ENDURANCE														
KTAS	373	391	403	430	439	456	461	461	476	484	490	490	1.045	0.953
FUEL FLOW	1753	1916	2082	2261	2448	2637	2827	3030	3257	3501	3767	4409	1.061	0.937
MAX RANGE														
KTAS	446	461	461	465	484	484	490	490	499	504	504	504	1.045	0.953
FUEL FLOW	1919	2084	2195	2336	2562	2706	2904	3088	3341	3592	3836	4451	1.061	0.937

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	3197	3283	3370	3460	3563	3661	3787	3934	4084	4260	4425		1.066	0.932
VMIN	236	257	278	298	318	337	358	380	403	425	447		1.043	0.955
180														
210														
240	2864												1.172	0.832
270	2215	2706											1.158	0.861
300	1967	2272	2669	3232									1.139	0.891
330	1881	2120	2394	2735	3149								1.103	0.909
360	1873	2069	2294	2547	2857	3215	3664						1.090	0.917
390	1907	2066	2262	2486	2729	3005	3329	3723					1.073	0.924
420	2006	2127	2285	2473	2676	2903	3170	3459	3833				1.076	0.943
450	2159	2264	2385	2528	2699	2885	3093	3348	3624	3948	4313		1.071	0.962
480	2383	2472	2580	2704	2839	2991	3170	3374	3604	3865	4184		1.038	1.012
510	2763	2844	2936	3049	3181	3323	3475	3660	3892	4140	4442		0.980	1.207
540	3944	4034	4141	4259	4388	4553	4746	4974					0.796	1.303
570														
600														
630														
660														
MIL	5493	5473	5452	5429	5403	5374	5339	5298	5252	5190	5120		1.018	0.928
VMAX	558	557	555	553	551	549	546	542	538	533	526		1.040	0.952
MAX ENDURANCE														
KTAS	353	375	392	414	432	434	454	461	461	477	484		1.045	0.953
FUEL FLOW	1871	2059	2261	2472	2669	2872	3092	3320	3577	3864	4182		1.061	0.937
MAX RANGE														
KTAS	432	443	461	461	470	484	484	490	490	490	494		1.045	0.953
FUEL FLOW	2059	2227	2440	2574	2774	3012	3192	3425	3649	3887	4230		1.061	0.937

Figure C4-3. (Sheet 42)

Subsonic Cruise — 35,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	3205	3293	3382	3480	3585	3692	3845	4007	4193				1.066	0.932
VMIN	238	259	281	302	322	343	367	391	417				1.043	0.955
180														
210														
240	2942												1.185	0.831
270	2288	2803											1.159	0.865
300	2046	2360	2761										1.117	0.902
330	1983	2221	2503	2852	3288								1.099	0.915
360	1997	2201	2425	2688	3000	3381							1.080	0.932
390	2057	2232	2434	2657	2903	3180	3532						1.061	0.936
420	2192	2328	2494	2681	2884	3129	3395	3708	4092				1.065	0.951
450	2390	2505	2634	2776	2947	3148	3378	3634	3941				1.053	0.980
480	2670	2765	2878	3003	3141	3300	3503	3720	3973				1.018	1.031
510	3144	3229	3323	3438	3574	3736	3913	4118	4395				0.963	1.277
540	4733	4846	4972										0.746	1.389
570														
600														
630														
660														
MIL	5324	5309	5291	5271	5249	5217	5183	5147	5103				1.022	0.928
VMAX	545	543	542	540	538	535	532	529	525				1.041	0.952
	MAX ENDURANCE													
KTAS	328	362	374	380	421	432	445	461	461				1.045	0.953
FUEL FLOW	1983	2201	2424	2657	2884	3119	3376	3620	3910				1.061	0.937
	MAX RANGE													
KTAS	412	432	440	459	464	473	483	484	485				1.045	0.953
FUEL FLOW	2146	2389	2576	2828	3009	3244	3525	3748	4008				1.061	0.937

*TEMPERATURE DEVIATION FROM STANDARD DAY.

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	3213	3304	3394	3502	3609	3742	3915	4111	4354				1.066	0.933
VMIN	240	262	284	306	327	351	378	407	438				1.043	0.955
180														
210														
240														
270	2362	2899											1.164	0.869
300	2125	2450	2868										1.112	0.905
330	2085	2323	2618	2975	3429								1.093	0.920
360	2128	2334	2557	2829	3153	3553							1.074	0.937
390	2224	2406	2606	2832	3078	3360	3741						1.052	0.942
420	2401	2539	2703	2890	3112	3358	3643	3963					1.051	0.963
450	2639	2755	2883	3028	3220	3434	3667	3955	4265				1.041	0.988
480	2968	3064	3179	3311	3468	3643	3854	4107	4379				1.008	1.045
510	3532	3623	3730	3863	4020	4195	4405	4652					0.947	1.077
540														
570														
600														
630														
660														
MIL	5202	5189	5175	5159	5136	5108	5077	5044	4933				1.026	0.929
VMAX	534	533	532	530	528	525	522	519	507				1.041	0.952
	MAX ENDURANCE													
KTAS	322	337	354	368	382	400	417	444	461				1.045	0.953
FUEL FLOW	2078	2312	2554	2812	3074	3342	3643	3954	4261				1.061	0.937
	MAX RANGE													
KTAS	398	428	432	452	461	462	472	473	477				1.045	0.953
FUEL FLOW	2262	2586	2754	3038	3280	3484	3779	4035	4346				1.061	0.937

Figure C4-3. (Sheet 43)

Subsonic Cruise — 35,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	MIL	3316	3409	3524	3645	3808	4018	4318						1.065	0.933
	VMIN	265	288	310	334	361	393	433						1.041	0.957
	180														
	210														
	240														
	270	2992												1.165	0.853
	300	2541	2978											1.135	0.905
	330	2427	2733	3109										1.087	0.925
	360	2467	2698	2971	3315									1.069	0.943
	390	2579	2782	3010	3258	3564								1.045	0.950
	420	2749	2915	3120	3345	3606	3903							1.039	0.967
	450	3006	3147	3310	3507	3732	3993	4282						1.029	0.993
	480	3378	3509	3654	3813	4014	4255	4513						1.001	1.063
	510	4068	4181	4337	4526	4728								0.931	1.101
	540														
	570														
	600														
	630														
	660														
	MIL	5103	5090	5075	5051	5007	4944	4786						1.029	0.929
	VMAX	525	524	522	520	515	508	491						1.041	0.952
	MAX ENDURANCE														
	KTAS	337	352	366	381	394	407	433						1.045	0.953
	FUEL FLOW	2420	2687	2961	3245	3551	3879	4242						1.061	0.937
	MAX RANGE														
	KTAS	418	432	445	461	461	461	473						1.045	0.953
	FUEL FLOW	2734	2981	3273	3581	3798	4048	4416						1.061	0.937

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

	GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
DRAG INDEX = 250	MIL	3328	3429	3547	3691	3906	4275							1.065	0.933
	VMIN	268	292	315	343	376	427							1.041	0.957
	180														
	210														
	240														
	270	3086												1.162	0.857
	300	2632	3089											1.133	0.906
	330	2537	2848	3246										1.085	0.929
	360	2604	2841	3119	3485									1.064	0.949
	390	2757	2964	3191	3451	3771								1.038	0.956
	420	2965	3148	3354	3594	3869								1.027	0.977
	450	3287	3434	3599	3816	4059	4322							1.015	1.010
	480	3719	3858	4025	4210	4416								0.982	1.077
	510	4579	4706											0.906	1.119
	540														
	570														
	600														
	630														
	660														
	MIL	5030	5004	4966	4907	4811	4624							1.032	0.927
	VMAX	518	515	510	504	494	472							1.037	0.950
	MAX ENDURANCE														
	KTAS	337	352	366	380	394	427							1.045	0.953
	FUEL FLOW	2533	2820	3111	3426	3763	4200							1.061	0.937
	MAX RANGE														
	KTAS	413	423	430	448	461	461							1.045	0.953
	FUEL FLOW	2914	3168	3426	3801	4147	4401							1.061	0.937

Figure C4-3. (Sheet 44)

Subsonic Cruise — 35,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 300

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL		3452	3586	3767	4160								1.065	0.933
VMIN		296	322	355	413								1.040	0.958
180														
210														
240														
270														
300		3202											1.113	0.895
330		2970	3385										1.094	0.925
360		2984	3278	3655									1.068	0.944
390		3146	3379	3660									1.034	0.967
420		3383	3606	3862	4136								1.020	0.982
450		3735	3920	4144									1.003	1.021
480		4255	4426										0.975	1.042
510														
540														
570														
600														
630														
660														
MIL		4855	4785	4679	4359								1.061	0.929
VMAX		498	491	478	438								1.042	0.949
MAX ENDURANCE														
KTAS		348	365	379	413								1.045	0.953
FUEL FLOW		2953	3274	3618	4087								1.061	0.937
MAX RANGE														
KTAS		409	415	430	438								1.045	0.953
FUEL FLOW		3288	3563	3948	4279								1.061	0.937

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 350

KTAS \ GW–1000 LB	22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL			3634	3900									1.062	0.934
VMIN			332	375									1.038	0.961
180														
210														
240														
270														
300														
330														
360			3444										1.064	0.950
390			3592	3871									1.031	0.969
420			3876	4132									1.015	0.987
450			4250										0.998	1.003
480														
510														
540														
570														
600														
630														
660														
MIL			4545	4253									1.057	0.913
VMAX			463	424									1.039	0.939
MAX ENDURANCE														
KTAS			364	378									1.045	0.953
FUEL FLOW			3443	3810									1.061	0.937
MAX RANGE														
KTAS			404	413									1.045	0.953
FUEL FLOW			3717	4062									1.061	0.937

Figure C4-3. (Sheet 45)

Subsonic Cruise — 35,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−54°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 400

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR 22	24	26	28	30	32	34	36	40	44	48	52	TEMP * EFFECT FACTOR +20°C	−20°C
MIL			3711										1.063	0.936
VMIN			347										1.037	0.963
180														
210														
240														
270														
300														
330														
360			3612										1.060	0.956
390			3807										1.021	0.979
420														
450														
480														
510														
540														
570														
600														
630														
660														
MIL			4210										1.055	0.908
VMAX			419										1.041	0.936
MAX ENDURANCE														
KTAS			354										1.045	0.953
FUEL FLOW			3610										1.061	0.937
MAX RANGE														
KTAS			392										1.045	0.953
FUEL FLOW			3822										1.061	0.937

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

Figure C4-3. (Sheet 46)

Subsonic Cruise — 40,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

		TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
DRAG INDEX = 0	MIL	2731	2832	2931	3049	3181	3318	3466	3630					1.065	0.935
	VMIN	288	313	337	362	388	414	439	465					1.044	0.955
	180														
	210														
	240														
	270														
	300	2311												1.157	0.856
	330	1979	2350											1.137	0.885
	360	1848	2122	2461										1.105	0.909
	390	1799	2029	2285	2603	3005								1.100	0.911
	420	1794	1984	2207	2451	2749	3122							1.083	0.903
	450	1837	1991	2178	2384	2622	2904	3246						1.076	0.921
	480	1937	2065	2216	2396	2591	2814	3090	3406					1.053	0.969
	510	2127	2244	2384	2550	2754	2980	3238	3529					1.003	1.137
	540	2872	2986	3121	3268	3458	3687							0.851	1.227
	570														
	600														
	630														
	660														
	MIL	4455	4428	4399	4363	4325	4286	4220	4123					1.009	0.920
	VMAX	568	565	561	557	553	548	540	528					1.040	0.952
	MAX ENDURANCE														
	KTAS	405	430	450	459	472	482	482	487					1.045	0.953
	FUEL FLOW	1790	1981	2178	2376	2588	2811	3085	3379					1.062	0.936
	MAX RANGE														
	KTAS	482	482	502	502	502	494	502	502					1.045	0.953
	FUEL FLOW	1942	2071	2306	2478	2681	2852	3152	3439					1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

	KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	+20°C	−20°C
DRAG INDEX = 50	MIL	2743	2849	2951	3092	3235	3396	3572						1.065	0.936
	VMIN	291	317	342	370	399	428	456						1.044	0.955
	180														
	210														
	240														
	270														
	300	2399												1.153	0.857
	330	2065	2449											1.132	0.890
	360	1949	2234	2582										1.100	0.912
	390	1929	2155	2421	2749									1.087	0.926
	420	1951	2146	2366	2623	2927								1.068	0.920
	450	2025	2190	2377	2585	2844	3133							1.058	0.937
	480	2171	2304	2458	2639	2848	3099	3399						1.037	0.988
	510	2433	2574	2730	2898	3116	3373	3653						0.978	1.203
	540	3446	3582	3757	3950									0.799	1.310
	570														
	600														
	630														
	660														
	MIL	4307	4286	4261	4225	4184	4128	4060						1.017	0.917
	VMAX	551	548	545	541	536	529	520						1.041	0.952
	MAX ENDURANCE														
	KTAS	393	415	431	453	466	470	482						1.045	0.953
	FUEL FLOW	1929	2144	2361	2584	2830	3096	3395						1.062	0.936
	MAX RANGE														
	KTAS	459	470	482	482	487	488	488						1.045	0.953
	FUEL FLOW	2060	2255	2465	2646	2881	3123	3405						1.062	0.936

Figure C4-3. (Sheet 47)

Subsonic Cruise — 40,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	TOTAL FUEL FLOW LB/HR 20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	−20°C
MIL	2758	2868	2988	3141	3313	3516							1.065	0.936
VMIN	295	321	349	380	413	447							1.043	0.955
180														
210														
240														
270														
300	2492												1.156	0.857
330	2158	2557											1.131	0.896
360	2050	2348	2715										1.093	0.917
390	2059	2284	2559	2914									1.081	0.933
420	2114	2308	2535	2796	3136								1.060	0.931
450	2225	2390	2578	2806	3070	3406							1.050	0.946
480	2411	2546	2700	2902	3130	3405							1.025	1.009
510	2773	2918	3078	3267	3507	3807							0.951	1.060
540														
570														
600														
630														
660														
MIL	4197	4176	4147	4115	4077	4011							1.027	0.918
VMAX	537	535	531	527	522	514							1.042	0.952
MAX ENDURANCE														
KTAS	365	389	410	430	454	470							1.045	0.953
FUEL FLOW	2048	2284	2535	2793	3069	3389							1.062	0.936
MAX RANGE														
KTAS	446	467	482	482	482	487							1.045	0.953
FUEL FLOW	2203	2464	2709	2911	3139	3438							1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	+20°C	−20°C
MIL	2775	2887	3034	3212	3436								1.065	0.936
VMIN	299	326	358	394	434								1.043	0.955
180														
210														
240														
270														
300	2589												1.159	0.857
330	2251	2672											1.131	0.901
360	2155	2462	2853										1.087	0.922
390	2189	2422	2701										1.062	0.945
420	2277	2474	2712	2982									1.047	0.949
450	2425	2592	2799	3031	3335								1.034	0.961
480	2652	2791	2970	3183	3442								1.012	1.030
510	3120	3282	3458	3656									0.930	1.085
540														
570														
600														
630														
660														
MIL	4115	4095	4068	4038	3949								1.033	0.919
VMAX	527	525	521	517	505								1.043	0.952
MAX ENDURANCE														
KTAS	362	379	397	421	435								1.045	0.953
FUEL FLOW	2155	2416	2686	2982	3320								1.062	0.936
MAX RANGE														
KTAS	441	459	470	470	482								1.045	0.953
FUEL FLOW	2369	2635	2900	3115	3454								1.062	0.936

Figure C4-3. (Sheet 48)

Subsonic Cruise — 40,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 200

GW–1000 LB / KTAS	TOTAL FUEL FLOW LB/HR												TEMP * EFFECT FACTOR	
	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL	2919	3094	3320										1.065	0.936
VMIN	334	370	414										1.042	0.956
180														
210														
240														
270														
300														
330														
360	2582												1.088	0.926
390	2563	2855											1.072	0.952
420	2654	2892	3196										1.041	0.960
450	2814	3025	3292										1.025	0.970
480	3070	3249	3506										1.004	1.052
510	3666												0.917	1.109
540														
570														
600														
630														
660														
MIL	4032	3978	3858										1.039	0.918
VMAX	517	509	494										1.041	0.951
MAX ENDURANCE														
KTAS	378	395	414										1.045	0.953
FUEL FLOW	2545	2839	3187										1.062	0.936
MAX RANGE														
KTAS	446	459	470										1.045	0.953
FUEL FLOW	2787	3078	3408										1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 250

GW–1000 LB / KTAS	22	24	26	28	30	32	34	36	40	44	48	52	+20°C	−20°C
MIL	2958	3181											1.064	0.937
VMIN	343	388											1.042	0.957
180														
210														
240														
270														
300														
330														
360	2713												1.085	0.928
390	2708	3025											1.070	0.961
420	2833	3101											1.032	0.975
450	3042	3286											1.011	0.987
480	3361	3587											0.987	1.006
510														
540														
570														
600														
630														
660														
MIL	3902	3771											1.048	0.917
VMAX	499	483											1.042	0.950
MAX ENDURANCE														
KTAS	378	395											1.045	0.953
FUEL FLOW	2680	3015											1.062	0.936
MAX RANGE														
KTAS	430	445											1.045	0.953
FUEL FLOW	2891	3247											1.062	0.936

Figure C4-3. (Sheet 49)

Subsonic Cruise — 45,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 0

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	2428	2565	2710	2865	3111								1.029	0.935
VMIN	356	389	422	454	494								1.065	0.954
180														
210														
240														
270														
300														
330														
360	2247												1.119	0.877
390	2041	2435											1.107	0.897
420	1938	2231											1.100	0.915
450	1894	2132	2421										1.088	0.926
480	1913	2110	2346	2633									1.073	0.981
510	2075	2260	2477	2752	3100								1.003	1.122
540	2670	2852	3088										0.854	1.205
570														
600														
630														
660														
MIL	3519	3475	3427	3343	3232								0.966	0.932
VMAX	558	552	546	533	514								1.031	0.952
	MAX ENDURANCE													
KTAS	459	472	482	482	495								1.045	0.953
FUEL FLOW	1891	2106	2343	2629	3005								1.062	0.936
	MAX RANGE													
KTAS	487	488	502	502	502								1.045	0.953
FUEL FLOW	1936	2128	2410	2683	3022								1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 50

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	38	40	44	TEMP* EFFECT FACTOR +20°C	TEMP* EFFECT FACTOR −20°C
MIL	2461	2611	2780										1.031	0.935
VMIN	364	400	437										1.068	0.955
180														
210														
240														
270														
300														
330														
360														
390	2155												1.106	0.910
420	2073	2374											1.091	0.927
450	2054	2309	2619										1.073	0.936
480	2108	2315	2574										1.052	1.000
510	2333	2533	2796										0.979	1.042
540	3191												0.798	1.143
570														
600														
630														
660														
MIL	3396	3357	3301										0.978	0.932
VMAX	541	535	526										1.034	0.952
	MAX ENDURANCE													
KTAS	448	466	472										1.045	0.953
FUEL FLOW	2053	2299	2573										1.062	0.936
	MAX RANGE													
KTAS	482	487	488										1.045	0.953
FUEL FLOW	2113	2343	2593										1.062	0.936

Figure C4-3. (Sheet 50)

Subsonic Cruise — 45,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (−56°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

DRAG INDEX = 100

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
	TOTAL FUEL FLOW LB/HR													
MIL	2500	2676	2906										1.034	0.935
VMIN	373	415	461										1.072	0.955
180														
210														
240														
270														
300														
330														
360														
390	2273												1.083	0.914
420	2211	2542											1.069	0.937
450	2227	2490											1.057	0.955
480	2312	2541	2837										1.039	1.017
510	2612	2845											0.962	1.058
540														
570														
600														
630														
660														
MIL	3312	3276	3185										0.985	0.933
VMAX	528	522	506										1.036	0.952
MAX ENDURANCE														
KTAS	423	454	470										1.045	0.953
FUEL FLOW	2211	2490	2825										1.062	0.936
MAX RANGE														
KTAS	482	482	488										1.045	0.953
FUEL FLOW	2319	2547	2865										1.062	0.936

***TEMPERATURE DEVIATION FROM STANDARD DAY.**

DRAG INDEX = 150

KTAS \ GW–1000 LB	20	22	24	26	28	30	32	34	36	40	44	48	TEMP * EFFECT FACTOR +20°C	TEMP * EFFECT FACTOR −20°C
MIL	2553	2785											1.043	0.935
VMIN	386	438											1.083	0.955
180														
210														
240														
270														
300														
330														
360														
390	2412												1.083	0.915
420	2354												1.065	0.950
450	2406	2704											1.050	0.963
480	2535	2792											1.022	1.037
510	2918												0.942	1.084
540														
570														
600														
630														
660														
MIL	3254	3168											0.984	0.932
VMAX	518	503											1.023	0.951
MAX ENDURANCE														
KTAS	409	438											1.045	0.953
FUEL FLOW	2350	2694											1.062	0.936
MAX RANGE														
KTAS	470	482											1.045	0.953
FUEL FLOW	2479	2802											1.062	0.936

Figure C4-3. (Sheet 51)

Diversion Decision — Divert

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT SEA LEVEL

FUEL ON BOARD —LB	REMAIN AT SEA LEVEL	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	19	5.0K/0.46	20	16	102
400	37	15.0K/0.55	45	38	200
600	55	25.0K/0.68	77	60	267
800	72 0.43M	30.0K/0.73	110	71	298
1000	90	35.0K/0.78	146	83	330
1500	134	40.0K/0.84	241	97	367
2000	178	40.0K/0.84	337	97	367

IF YOU ARE AT 5000 FEET

FUEL ON BOARD —LB	REMAIN AT 5000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	26	5.0K/0.46	26	16	102
400	46	15.0K/0.55	51	38	200
600	66	30.0K/0.72	86	71	298
800	85 0.47M	35.0K/0.78	121	83	330
1000	105	35.0K/0.78	158	83	330
1500	155	40.0K/0.84	254	97	367
2000	204	40.0K/0.84	350	97	367

*** START DESCENT AT 16 NM. 102 LB FUEL USED IN DESCENT.**

IF YOU ARE AT 10,000 FEET

FUEL ON BOARD —LB	REMAIN AT 10,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	32	10.0K/0.50	32	27	159
400	54	20.0K/0.61	59	48	233
600	77	30.0K/0.73	95	71	298
800	99 0.51M	35.0K/0.78	133	83	330
1000	121	35.0K/0.79	170	83	330
1500	177	40.0K/0.84	267	97	367
2000	232	40.0K/0.84	363	97	367

*** START DESCENT AT 27 NM. 159 LB FUEL USED IN DESCENT.**

NOTES:

- 4.0% RANGE GAIN FOR 10 KNOTS TAILWIND.
- 2.5% RANGE LOSS FOR 10 KNOTS HEADWIND.
- SUBTRACT 2.5 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL DIVERT RANGE AT CURRENT ALTITUDE INCLUDES CRUISE AND DESCENT, AND TOTAL DIVERT RANGE AT OPTIMUM ALTITUDE INCLUDES CLIMB, CRUISE, AND DESCENT.

Figure C4-4. (Sheet 1)

Diversion Decision — Divert

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT 20,000 FEET

FUEL ON BOARD —LB	REMAIN AT 20,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	72	25.0K/0.68	75	60	267
600	100	35.0K/0.78	112	83	330
800	128 0.62M	40.0K/0.84	152	97	367
1000	156	40.0K/0.84	191	97	367
1500	225	40.0K/0.84	289	97	367
2000	294	40.0K/0.84	385	97	367

* START DESCENT AT 48 NM. 233 LB FUEL USED IN DESCENT.

IF YOU ARE AT 30,000 FEET

FUEL ON BOARD —LB	REMAIN AT 30,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	89	35.0K/0.77	89	83	330
600	124	40.0K/0.84	129	97	367
800	158 0.74M	40.0K/0.84	168	97	367
1000	193	40.0K/0.84	208	97	367
1500	279	40.0K/0.84	306	97	367
2000	363	40.0K/0.84	402	97	367

* START DESCENT AT 71 NM. 298 LB FUEL USED IN DESCENT.

IF YOU ARE AT 40,000 FEET

FUEL ON BOARD —LB	REMAIN AT 40,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL DIVERT RANGE—NM*	ALT/MACH	TOTAL DIVERT RANGE —NM	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	104	40.0K/0.83	104	97	367
600	144	40.0K/0.84	144	97	367
800	184 0.84M	40.0K/0.84	184	97	367
1000	224	40.0K/0.84	224	97	367
1500	321	40.0K/0.84	321	97	367
2000	417	40.0K/0.84	417	97	367

* START DESCENT AT 97 NM. 367 LB FUEL USED IN DESCENT.

NOTES:

- 4.0% RANGE GAIN FOR 10 KNOTS TAILWIND.
- 2.5% RANGE LOSS FOR 10 KNOTS HEADWIND.
- SUBTRACT 2.5 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL DIVERT RANGE AT CURRENT ALTITUDE INCLUDES CRUISE AND DESCENT, AND TOTAL DIVERT RANGE AT OPTIMUM ALTITUDE INCLUDES CLIMB, CRUISE, AND DESCENT.

Figure C4-4. (Sheet 2)

Diversion Decision — Loiter

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT SEA LEVEL

FUEL ON BOARD —LB	REMAIN AT SEA LEVEL	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN	ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	9	0.0K/0.32	9	0	0
600	13	5.0K/0.35	13	12	84
800	17 0.32M	20.0K/0.47	19	44	222
1000	21	30.0K/0.55	25	65	285
1500	31	35.0K/0.67	38	79	320
2000	41	35.0K/0.67	49	79	320

IF YOU ARE AT 5000 FEET

FUEL ON BOARD —LB	REMAIN AT 5000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*	ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	—	—	—	—	—
600	15	10.0K/0.39	15	24	145
800	19 0.36M	20.0K/0.47	21	44	222
1000	23	35.0K/0.67	27	79	320
1500	34	35.0K/0.67	39	79	320
2000	44	35.0K/0.67	51	79	320

*** START DESCENT AT 12 NM. 84 LB FUEL USED IN DESCENT.**

IF YOU ARE AT 10,000 FEET

FUEL ON BOARD —LB	REMAIN AT 10,000 FT	CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*	ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—	—	—	—	—
400	—	—	—	—	—
600	17	15.0K/0.43	17	34	188
800	21 0.39M	25.0K/0.51	23	54	253
1000	25	35.0K/0.67	28	79	320
1500	36	35.0K/0.67	40	79	320
2000	47	35.0K/0.67	52	79	320

*** START DESCENT AT 24 NM. 145 LB FUEL USED IN DESCENT.**

NOTES:

- LOITER TIME AT CONSTANT ALTITUDE BASED ON 10 NM HOLDING PATTERN WITH 30-DEGREE BANK TURNS.
- ADD 0.5 MIN TO LOITER TIME FOR EACH 1000 FT OF DESTINATION ELEVATION.
- SUBTRACT 2.3 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL LOITER TIME AT CURRENT ALTITUDE INCLUDES LOITER AND DESCENT, AND TOTAL TIME AT OPTIMUM ALTITUDE INCLUDES CLIMB, LOITER, AND DESCENT.

Figure C4-4. (Sheet 3)

Diversion Decision — Loiter

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

CONDITIONS:

- MIL CLIMB AT 433 KIAS OR OPTIMUM ALTITUDE MACH NUMBER, WHICHEVER IS LESS
- DESCEND AT IDLE, 221 KIAS
- STANDARD DAY
- NO FUEL RESERVE
- ZERO WIND
- ALL DESCENTS ARE TO SEA LEVEL
- DRAG INDEX = 55

IF YOU ARE AT 20,000 FEET

FUEL ON BOARD —LB	REMAIN AT 20,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	—		—	—	—	—
600	20		20.0K/0.47	20	44	222
800	24	0.48M	30.0K/0.55	25	65	285
1000	29		35.0K/0.67	31	79	320
1500	40		35.0K/0.67	42	79	320
2000	51		35.0K/0.67	54	79	320

* START DESCENT AT 44 NM. 222 LB FUEL USED IN DESCENT.

IF YOU ARE AT 30,000 FEET

FUEL ON BOARD —LB	REMAIN AT 30,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	—		—	—	—	—
600	23		30.0K/0.55	23	65	285
800	27	0.55M	35.0K/0.67	28	79	320
1000	32		35.0K/0.67	33	79	320
1500	44		35.0K/0.67	44	79	320
2000	55		35.0K/0.67	55	79	320

* START DESCENT AT 65 NM. 285 LB FUEL USED IN DESCENT.

IF YOU ARE AT 40,000 FEET

FUEL ON BOARD —LB	REMAIN AT 40,000 FT		CLIMB TO OPT ALTITUDE		DESCEND	
	TOTAL LOITER TIME—MIN*		ALT/MACH	TOTAL TIME —MIN	FROM OPT ALT —NM	FUEL USED IN DESCENT —LB
200	—		—	—	—	—
400	—		—	—	—	—
600	—		—	—	—	—
800	29	0.75M	40.0K/0.75	29	93	356
1000	34		40.0K/0.75	34	93	356
1500	45		40.0K/0.75	45	93	356
2000	55		40.0K/0.75	55	93	356

* START DESCENT AT 93 NM. 356 LB FUEL USED IN DESCENT.

NOTES:

- LOITER TIME AT CONSTANT ALTITUDE BASED ON 10 NM HOLDING PATTERN WITH 30-DEGREE BANK TURNS.
- ADD 0.5 MIN TO LOITER TIME FOR EACH 1000 FT OF DESTINATION ELEVATION.
- SUBTRACT 2.3 NM FROM DESCENT DISTANCE FOR EACH 1000 FT OF DESTINATION ELEVATION.
- TOTAL LOITER TIME AT CURRENT ALTITUDE INCLUDES LOITER AND DESCENT, AND TOTAL TIME AT OPTIMUM ALTITUDE INCLUDES CLIMB, LOITER, AND DESCENT.

Figure C4-4. (Sheet 4)

Best Cruise Altitude for Short Range Mission — Penetration Descent

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

CONDITIONS:

- STANDARD DAY
- NO WIND
- MIL CLIMB AT SCHEDULED KIAS OR CONSTANT ALTITUDE OPTIMUM CRUISE MACH NO., WHICHEVER IS LOWER
- CRUISE AT CONSTANT ALTITUDE AT OPTIMUM MACH
- DESCEND AT IDLE WITH SPEEDBRAKES OPEN
- DESCENT SPEED = CRUISE MACH TO 300 KIAS, THEN 300 KIAS

START CLIMB GROSS WEIGHT*	TOTAL MISSION RANGE**	BEST CRUISE ALTITUDE	TOTAL FUEL CONSUMED (LB)/DESCENT RANGE (NM)					
			DI 0	DI 50	DI 100	DI 150	DI 200	DI 250
LB	NM	FT						
20,000	50	24,400	429/14.3	465/13.2	498/12.6	531/12.1	560/11.9	587/11.5
20,000	100	33,300	674/19.5	729/18.3	787/17.3	846/16.4	902/15.8	958/15.1
20,000	150	41,200	891/24.8	971/23.4	1060/22.1	1148/20.7	1245/19.9	1073/19.3
20,000	200	41,200	1086/24.6	1187/23.2	1295/21.9	1404/20.6	1521/19.7	1399/18.9
20,000	250	41,300	1278/24.4	1401/23.1	1530/21.8	1658/20.5	1794/19.5	1716/18.8
24,000	50	20,100	462/14.3	504/13.0	540/12.1	573/11.4	611/10.8	644/10.4
24,000	100	30,500	754/21.3	819/19.7	888/18.4	954/17.4	1022/16.5	1088/15.7
24,000	150	39,000	1007/27.2	1043/25.4	1207/24.3	1312/22.9	1424/21.7	1459/21.4
24,000	200	39,200	1234/27.2	1209/25.5	1488/24.8	1613/23.1	1751/21.8	1655/21.8
24,000	250	39,200	1455/26.9	1461/25.3	1755/24.5	1905/22.7	2067/21.5	1865/21.6
28,000	50	17,000	493/14.2	537/12.8	576/11.9	615/11.2	656/10.5	693/9.9
28,000	100	25,800	824/20.7	898/19.1	975/17.8	1054/16.7	1129/15.7	1202/15.0
28,000	150	31,900	1098/25.1	1206/23.6	1321/21.9	1430/20.6	1545/19.5	1656/18.4
28,000	200	34,600	1359/26.8	1489/25.1	1638/23.6	1781/22.2	1928/20.9	2074/19.8
28,000	250	35,200	1610/27.2	1773/25.3	1946/23.7	2112/22.3	2296/21.1	2477/19.9
32,000	50	14,300	519/13.6	567/12.4	611/11.4	652/10.6	696/9.9	736/9.3
32,000	100	22,600	893/20.6	970/18.9	1058/17.8	1143/16.6	1228/15.5	1310/14.7
32,000	150	28,800	1202/25.6	1327/24.0	1452/22.3	1575/20.8	1700/19.7	1815/18.6
32,000	200	31,100	1500/27.1	1648/25.4	1812/23.9	1973/22.4	2142/21.1	2291/19.9
32,000	250	33,100	1787/28.6	1971/26.7	2159/25.1	2350/23.6	2554/22.3	2757/21.0
36,000	50	12,000	543/13.0	595/11.7	643/10.8	686/10.2	736/9.5	780/8.9
36,000	100	20,400	956/20.5	1041/18.8	1135/17.8	1229/16.7	1323/15.6	1413/14.8
36,000	150	27,000	1304/26.2	1437/24.8	1578/23.1	1711/21.7	1851/20.5	1980/19.3
36,000	200	29,400	1636/28.1	1801/26.3	1976/24.9	2151/23.6	2344/22.2	2510/20.8
36,000	250	30,800	1959/29.2	2162/27.2	2366/25.7	2580/24.3	2811/22.9	3028/21.5
40,000	50	9,400	569/11.4	624/10.1	675/9.4	720/9.0	775/8.3	822/7.7
40,000	100	19,300	1019/20.9	1112/19.4	1212/18.1	1312/17.2	1418/16.2	1518/15.5
40,000	150	23,800	1405/25.1	1552/23.7	1701/22.0	1843/20.9	1995/19.8	2133/18.6
40,000	200	27,500	1775/28.3	1953/26.6	2148/25.2	2333/24.0	2541/22.7	2725/21.2
40,000	250	28,900	2133/29.5	2352/27.7	2581/26.2	2810/24.8	3058/23.5	3300/22.0
44,000	50	7,000	594/10.0	649/8.8	705/7.9	754/7.6	813/7.0	863/6.5
44,000	100	17,300	1084/20.1	1183/18.7	1292/17.4	1399/16.6	1513/15.8	1619/15.0
44,000	150	21,300	1509/24.0	1663/22.6	1823/21.0	1977/19.9	2138/19.0	2286/17.9
44,000	200	25,300	1905/28.0	2103/26.2	2315/24.8	2518/23.6	2733/22.5	2934/21.0
44,000	250	26,900	2297/29.3	2539/27.5	2790/26.0	3040/24.8	3305/23.4	3567/22.0
48,000	50	5,300	617/8.9	675/7.6	734/6.9	787/6.5	852/6.1	908/5.6
48,000	100	15,700	1147/19.3	1254/18.0	1373/16.8	1486/16.1	1608/15.4	1719/14.5
48,000	150	21,100	1607/25.0	1769/23.4	1945/22.1	2114/21.0	2283/19.9	2444/19.1
48,000	200	23,600	2036/27.5	2253/25.7	2479/24.5	2701/23.3	2931/22.0	3146/20.9
48,000	250	25,200	2461/28.8	2720/27.4	3003/25.8	3270/24.5	3555/23.3	
52,000	50	4,400	642/8.2	701/7.1	765/6.3	821/5.9	892/5.5	953/5.2
52,000	100	14,300	1211/18.5	1325/17.3	1453/16.2	1575/15.4	1704/14.8	1822/14.0
52,000	150	19,500	1703/24.4	1882/22.8	2068/21.5	2248/20.5	2424/19.5	2602/18.6
52,000	200	22,300	2165/26.9	2399/25.4	2645/24.2	2888/23.1	3132/21.8	3358/20.7
52,000	250	23,500	2625/27.9	2904/26.7	3217/25.2	3497/24.1		

*CLIMB BEGINS AT SL.
**CLIMB/CRUISE/DESCENT.

Figure C4-5. (Sheet 1)

Best Cruise Altitude for Short Range Mission — Maximum Range Descent

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

CONDITIONS:

- **STANDARD DAY**
- **NO WIND**
- **MIL CLIMB AT SCHEDULED KIAS OR CONSTANT ALTITUDE OPTIMUM CRUISE MACH NO., WHICHEVER IS LOWER**
- **CRUISE AT CONSTANT ALTITUDE AT OPTIMUM MACH**
- **DESCEND AT IDLE WITH SPEEDBRAKES CLOSED**
- **DESCENT INDEX/DESCENT SPEED KIAS = 0/215, 50/220, ≥ 100/230**

START CLIMB GROSS WEIGHT*	TOTAL MISSION RANGE**	BEST CRUISE ALTITUDE	TOTAL FUEL CONSUMED (LB)/DESCENT RANGE (NM)					
			DI 0	DI 50	DI 100	DI 150	DI 200	DI 250
LB	NM	FT						
20,000	50	14,600	401/46.3	427/38.7	449/32.0	475/28.4	504/25.3	534/22.7
20,000	100	30,300	670/87.4	693/75.1	731/61.8	779/54.5	828/48.9	875/44.3
20,000	150	35,900	895/107.6	933/90.9	987/74.2	1053/65.4	1131/58.7	1202/53.0
20,000	200	41,600	1101/132.2	1158/110.2	1237/89.5	1333/79.1	1444/69.9	1236/63.4
20,000	250	41,800	1295/134.0	1375/111.0	1473/89.8	1589/79.1	1721/69.9	1582/63.4
24,000	50	15,700	414/44.6	438/39.7	465/34.7	497/31.1	529/28.2	561/25.8
24,000	100	29,400	719/78.4	756/69.9	802/61.3	858/55.3	917/50.3	977/46.4
24,000	150	34,600	969/92.5	1030/82.9	1097/72.5	1186/65.6	1277/59.9	1370/55.0
24,000	200	36,300	1199/97.6	1281/87.9	1380/76.3	1489/69.2	1600/63.3	1721/58.1
24,000	250	36,700	1426/99.8	1532/89.3	1656/77.4	1789/70.2	1925/64.0	2063/58.6
28,000	50	16,800	432/42.7	467/38.6	489/35.9	522/32.9	559/30.1	594/27.9
28,000	100	27,100	776/65.6	823/60.1	878/55.3	941/50.8	1011/47.0	1079/43.8
28,000	150	32,200	1056/76.8	1133/71.9	1220/65.7	1315/60.6	1418/56.3	1521/52.4
28,000	200	35,000	1320/83.6	1419/77.8	1535/72.0	1663/66.3	1801/61.2	1937/57.1
28,000	250	35,600	1570/86.2	1704/79.7	1845/73.3	1994/67.7	2167/62.9	2343/58.0
32,000	50	15,800	463/37.9	492/34.9	526/32.4	563/30.2	605/28.3	642/26.4
32,000	100	24,800	839/55.0	897/51.6	958/48.7	1032/45.6	1110/42.7	1186/40.3
32,000	150	30,000	1152/64.8	1242/62.1	1345/59.2	1453/55.0	1566/51.6	1683/48.4
32,000	200	32,700	1449/71.1	1570/67.4	1695/64.5	1843/60.4	2002/56.6	2152/52.9
32,000	250	34,000	1736/74.3	1891/70.7	2045/67.3	2222/62.7	2409/59.1	2616/55.6
36,000	50	13,700	493/31.8	527/29.4	567/27.6	608/25.7	655/24.3	695/22.8
36,000	100	21,900	905/45.2	972/43.0	1043/41.2	1125/39.2	1213/36.8	1295/35.0
36,000	150	28,300	1258/55.8	1357/54.4	1471/53.3	1595/50.0	1724/47.1	1844/44.9
36,000	200	30,500	1585/60.6	1727/58.4	1864/57.1	2025/54.3	2205/51.5	2369/48.4
36,000	250	31,500	1907/63.0	2085/60.9	2257/59.2	2456/55.8	2660/53.1	2883/50.1
40,000	50	11,700	523/26.7	564/24.5	609/23.2	654/21.5	704/20.5	750/19.4
40,000	100	20,300	973/39.2	1050/37.6	1130/36.5	1219/34.9	1316/33.1	1407/31.7
40,000	150	26,000	1360/48.1	1476/46.9	1602/46.7	1740/44.3	1878/41.9	2009/40.0
40,000	200	28,400	1731/51.7	1883/50.9	2045/50.5	2217/48.3	2410/46.2	2594/43.4
40,000	250	29,200	2084/53.6	2280/52.8	2474/52.1	2697/49.5	2916/47.4	3160/44.9
44,000	50	8,400	550/21.3	601/18.7	652/17.4	697/16.5	754/15.5	804/14.6
44,000	100	18,900	1043/34.5	1131/32.9	1221/32.5	1317/31.2	1422/29.7	1521/28.5
44,000	150	24,100	1468/41.7	1598/40.6	1737/41.1	1887/39.3	2037/37.1	2180/35.7
44,000	200	26,000	1866/44.8	2044/43.6	2223/44.3	2413/42.3	2617/40.8	2817/38.3
44,000	250	27,100	2259/46.2	2476/45.7	2696/46.0	2937/44.0	3182/42.1	3440/40.1
48,000	50	6,300	572/18.2	630/15.5	687/14.1	739/13.1	802/12.4	858/11.5
48,000	100	16,600	1113/29.5	1210/28.1	1312/27.7	1418/26.6	1533/25.5	1640/24.2
48,000	150	21,400	1575/35.8	1724/34.4	1875/34.7	2035/33.3	2197/31.5	2351/30.5
48,000	200	23,800	2005/38.8	2207/37.7	2402/38.6	2615/36.9	2835/35.3	3046/33.5
48,000	250	25,400	2433/40.4	2672/40.2	2925/40.7	3181/39.1	3454/37.5	
52,000	50	4,400	595/15.4	658/12.8	722/11.4	778/10.5	847/9.8	908/9.1
52,000	100	14,200	1182/25.1	1289/23.9	1402/23.4	1519/22.4	1643/21.6	1758/20.3
52,000	150	19,800	1677/32.1	1845/30.8	2010/30.8	2184/29.5	2356/28.1	2527/27.1
52,000	200	22,300	2145/34.3	2365/33.6	2583/34.4	2818/33.1	3056/31.3	3275/29.9
52,000	250	23,300	2605/35.3	2867/35.4	3154/35.9	3425/34.6		

* **CLIMB BEGINS AT SL.**
** **CLIMB/CRUISE/DESCENT.**

Figure C4-5. (Sheet 2)

PART 5 — ENDURANCE

Refer to SUBSONIC CRUISE TABLES, Part 4, for endurance information.

PART 6 — DESCENT

TABLE OF CONTENTS

LIST OF CHARTS

MAXIMUM RANGE DESCENT

Maximum range descent performance data is presented in figure C6-1. The data is based on a descent speed which results in maximum distance (range) being covered during descent. Effects of GW and drag index are shown in the chart. Descent speed is tabulated on the chart.

REFER TO FIGURE C6-1.

Enter chart on sheet 1 with initial altitude (A), and proceed upward to intercept appropriate drag index line (B), and then proceed to the right to the baseline. Note this point on the baseline. Enter GW block at (C), proceed to the right to intercept the appropriate drag index line (B), and proceed downward to intercept a line (D) which follows the guidelines and intercepts the point previously noted on the baseline. Continue to the right to read range (E). Repeat this process on sheet 2 in the same manner to obtain the fuel consumed (F) and time (G). If final altitude is above sea level, repeat the above process, using final altitude in place of initial altitude. The difference between the resulting values is then range, fuel, and time to descend from initial to final altitude. Obtain descent speed from the table on the chart.

SAMPLE PROBLEM.

A.	Initial altitude	=	30,000 feet
B.	Drag index	=	50
C.	GW	=	35,000 pounds
D.	Intersection point		
E.	Range	=	50 nm
F.	Fuel consumed	=	214 pounds
G.	Time	=	11.0 minutes
•	Descent speed	=	220 KIAS

The above data is for a descent to sea level. If the descent was stopped at 5000 feet:

•	Range	=	50 – 9 = 41 nm
•	Fuel consumed	=	214 – 60 = 154 pounds
•	Time	=	11.0 – 2.3 = 8.7 minutes

PENETRATION DESCENT

Fuel consumed, distance, and time to execute a penetration descent are shown in figure C6-2. The data is based on idle rpm, 300 KIAS, and speedbrakes open. Effects of GW and drag index are shown on the chart.

REFER TO FIGURE C6-2.

Enter chart with initial altitude (A), and proceed upward to intercept appropriate drag index line in the time, range, and fuel blocks (B), and then proceed to the right to GW baseline and follow guidelines to GW (C). Continue to the right to read fuel consumed (D), range (E), and time (F). If final altitude is above sea level, repeat the above process using final altitude in place of initial altitude. The difference between the resulting values is then fuel, range, and time to descend from initial to final altitude.

SAMPLE PROBLEM.

A.	Initial altitude	=	30,000 feet
B.	Drag index	=	100
C.	GW	=	35,000 pounds
D.	Fuel consumed	=	82 pounds
E.	Range	=	25 nm
F.	Time	=	4.2 minutes

The above data is for a descent to sea level. If the descent was stopped at 5000 feet:

- Fuel consumed = 82 – 22 = 60 pounds
- Range = 25 – 4 = 21 nm
- Time = 4.2 – 0.8 = 3.4 minutes

DESCENT WITH INOPERATIVE ENGINE

Figure C6-3 contains time and distance data for a descent with an inoperative engine. The data is presented as a function of descent airspeed for descents from various initial altitudes to sea level. Minimum EPU operating time is shown.

The chart is intended to be used to estimate the time available for engine airstart attempts once the aircraft has been maneuvered into the airstart envelope and may also be used to obtain glide distance with the engine inoperative.

REFER TO FIGURE C6-3.

Enter the chart with airspeed (A), proceed upward to the appropriate GW/altitude line (B), and then to the left to read time (C) and distance (D). To determine time and distance available to descend to another altitude, repeat the above steps for the final altitude and take the difference between the sets of data.

SAMPLE PROBLEM.

A.	Descent airspeed	=	250 KIAS
B.	GW/altitude	=	20,000 pounds/ 30,000 feet
C.	Time (to sea level)	=	8.4 minutes
D.	Distance (to sea level)	=	42.9 nm

If the descent was stopped at 5000 feet:

- Time = 8.4 – 1.6 = 6.8 minutes
- Distance = 42.9 – 7.0 = 35.9 nm

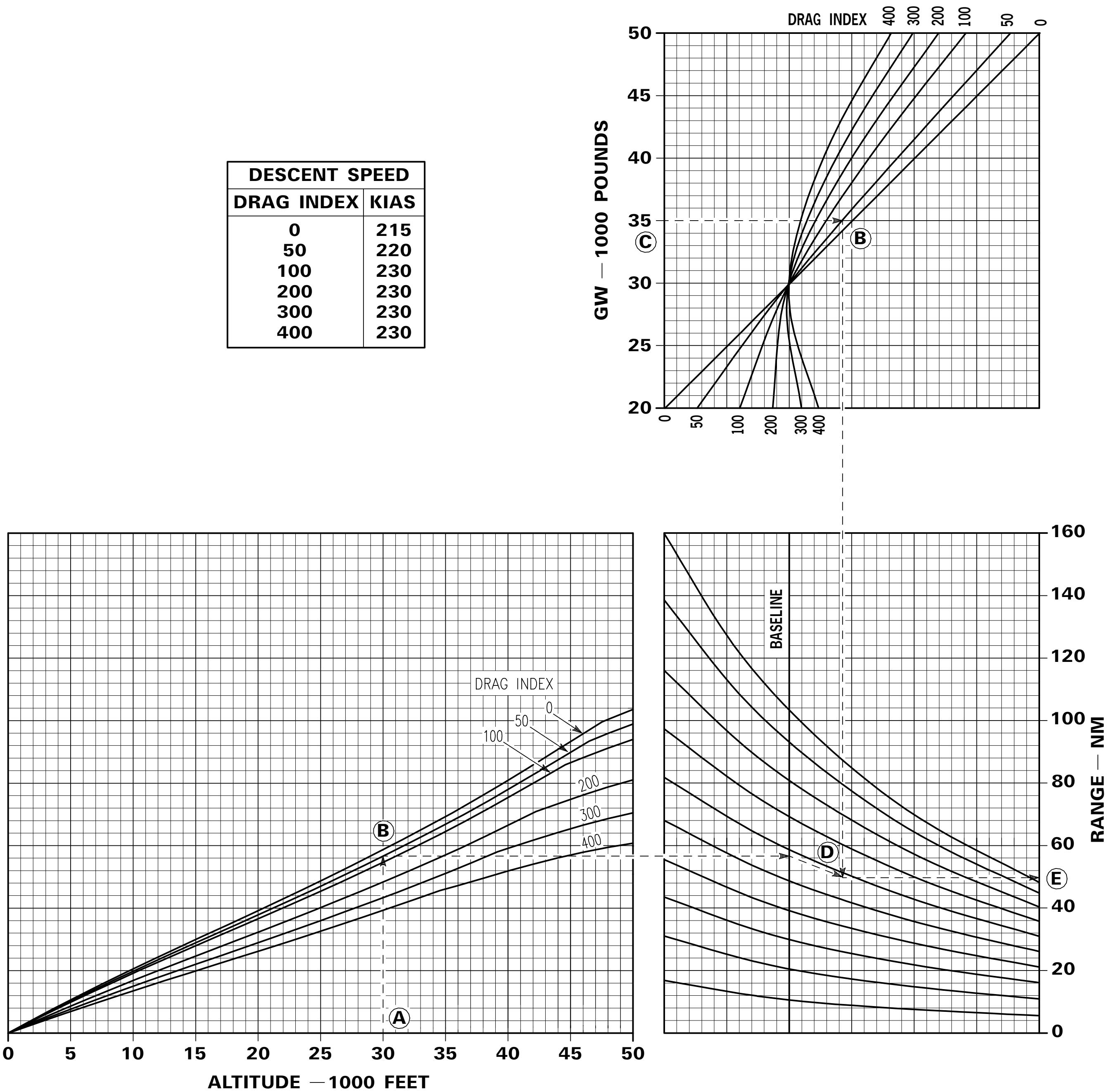
Maximum Range Descent — IDLE

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- SPEEDBRAKES — CLOSED

CONDITIONS:
- STANDARD DAY

DESCENT SPEED	
DRAG INDEX	KIAS
0	215
50	220
100	230
200	230
300	230
400	230



1F–16CJ–1–1–1038X37@

Figure C6-1. (Sheet 1)

Maximum Range Descent — IDLE

DATA BASIS ESTIMATED **ENGINE F100-PW-229/CFT**

CONFIGURATION:
- SPEEDBRAKES —CLOSED

CONDITIONS:
- STANDARD DAY

DESCENT SPEED	
DRAG INDEX	KIAS
0	215
50	220
100	230
200	230
300	230
400	230

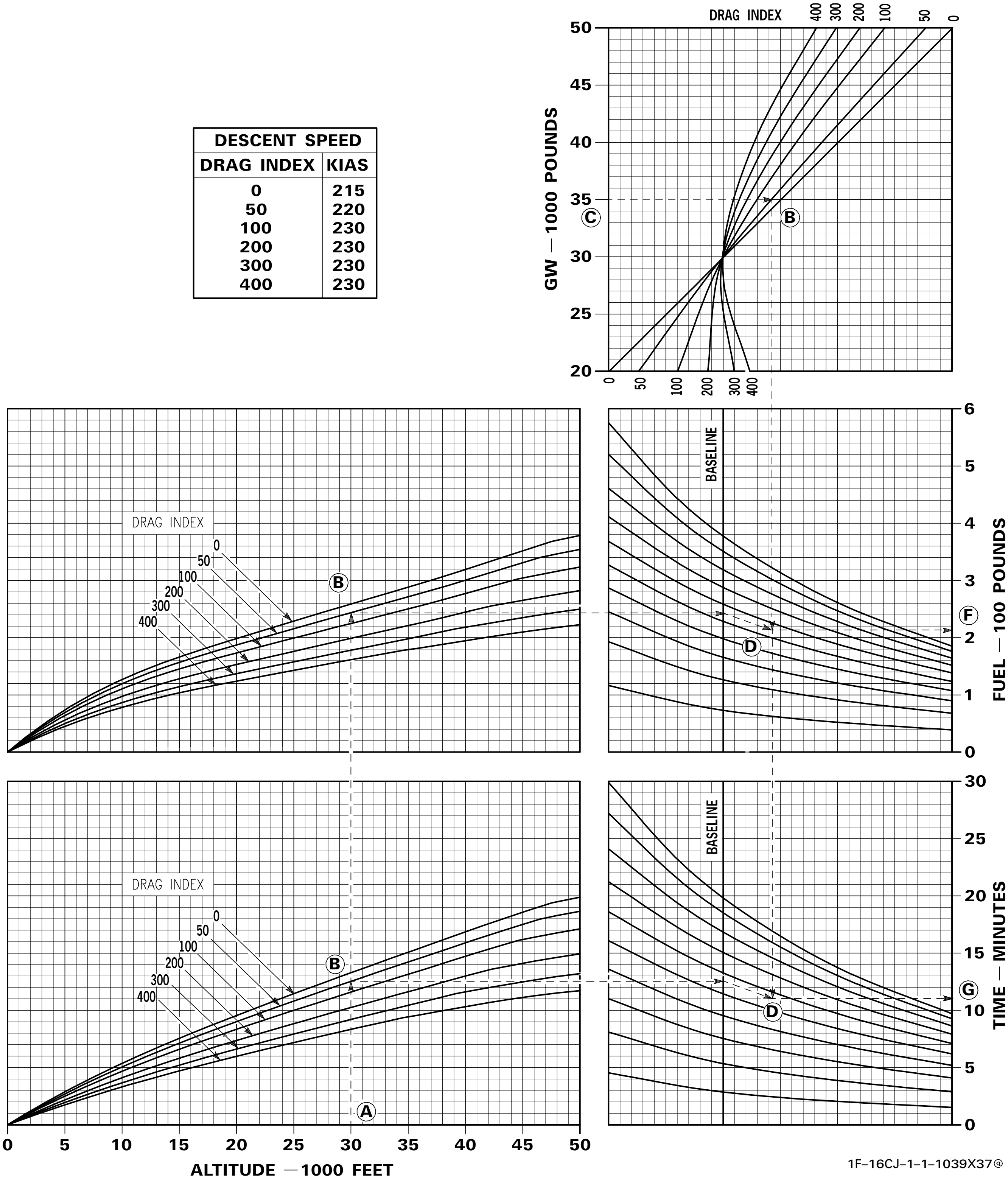


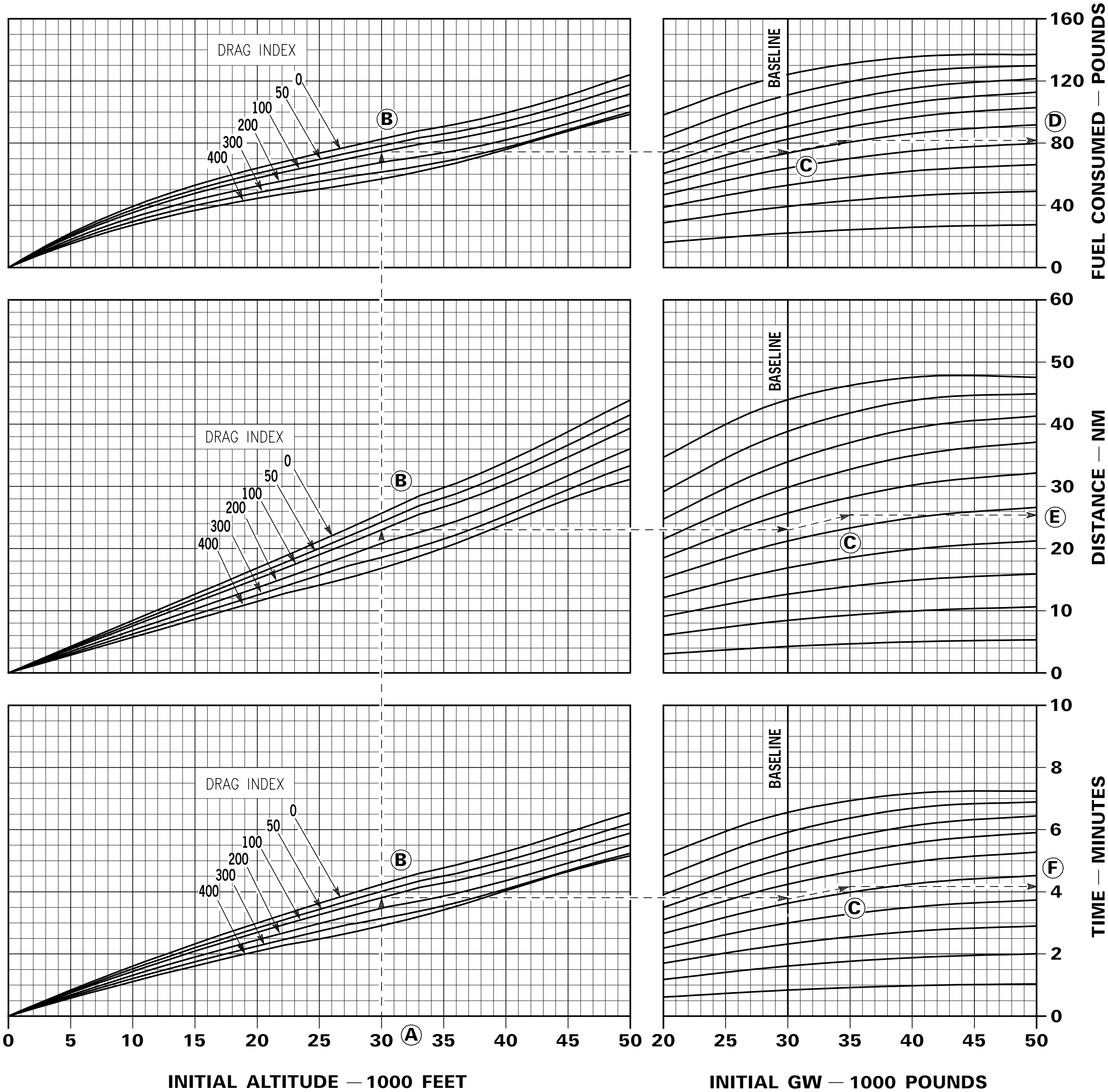
Figure C6-1. (Sheet 2)

Penetration Descent

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- SPEEDBRAKES — OPEN

CONDITIONS:
- IDLE
- DESCENT SPEED = CRUISE MACH TO 300 KIAS, THEN 300 KIAS
- STANDARD DAY



1F–16CJ–1–1–1040X37@

Figure C6-2.

Descent With Inoperative Engine

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- DRAG INDEX = 0

CONDITIONS:

- STANDARD DAY
- WINDMILLING ENGINE OR LOCKED ROTOR
- NO WIND

NOTE: REDUCE TIME AND DISTANCE 1% FOR EACH 10–UNIT INCREASE IN DRAG INDEX.

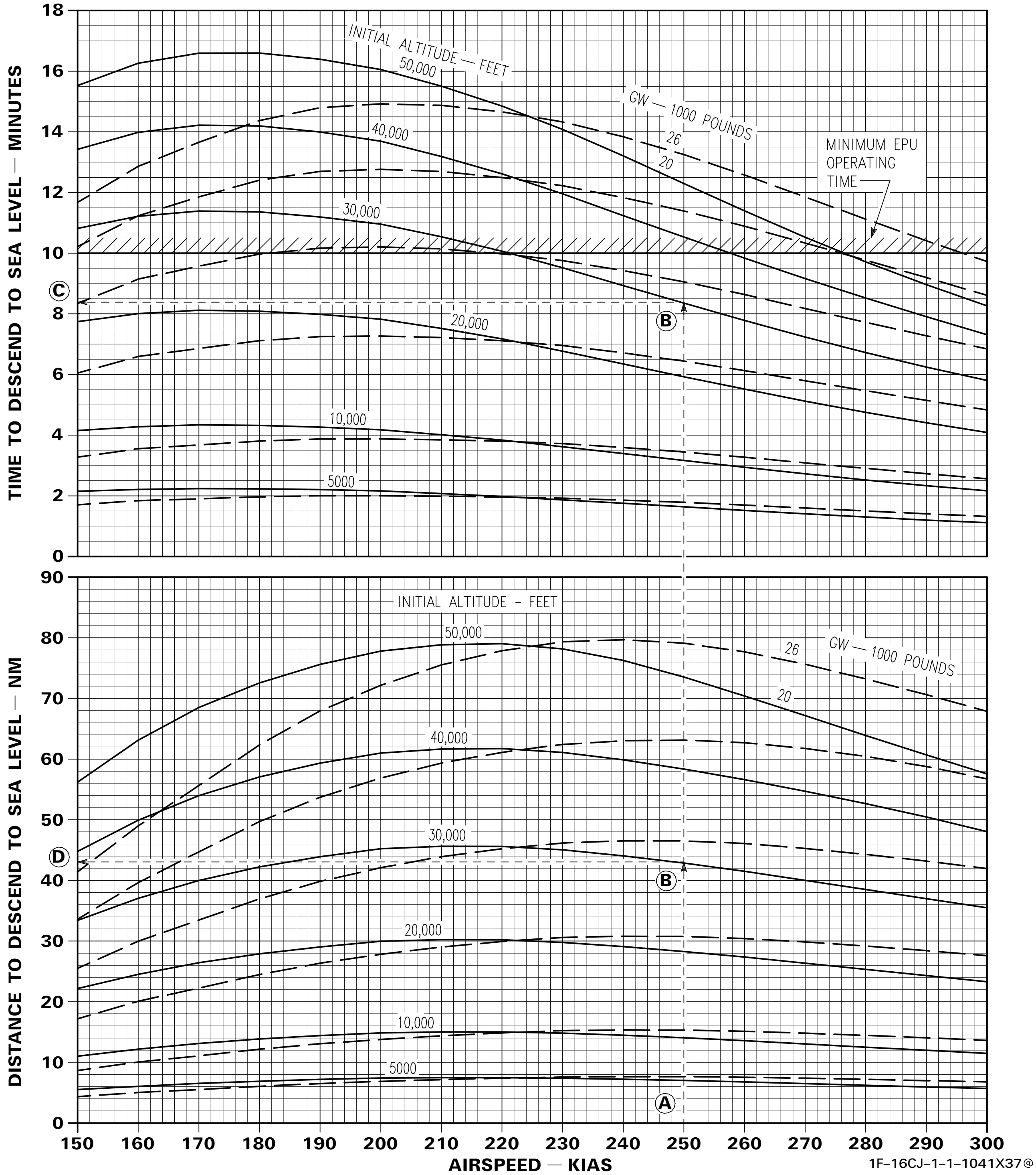


Figure C6-3.

PART 7 — LANDING

TABLE OF CONTENTS

LIST OF CHARTS

DEFINITION OF TERMS

Aerodynamic braking (two-point attitude) – Use of speedbrakes and maximum of 13 degrees AOA until deceleration to 100 KIAS.

Maximum effort braking – A single continuous wheel brake application using maximum pedal pressure (antiskid on) in conjunction with two-point aerodynamic braking (consistent with maintaining directional control). When wheel brakes become effective, the aircraft will automatically rotate to the three-point attitude. After the nose tire is on the runway, maintain full aft stick short of nose tire lift-off and open speedbrakes fully. On a dry runway, the nose lowers soon after wheel brakes are applied. **LESS 129** On a wet or icy runway, wheel brakes are not applied until deceleration to 100 KIAS to allow wheel spinup and proper antiskid operation. **129** On a wet or icy runway, apply brakes at any landing speed. Short Field Landing Distance charts are based on brakes applied at 100 KIAS.

Use drag chute immediately after touchdown in conjunction with proper wheel braking and allow aircraft to rotate to the three–point attitude as the drag chute opens. At touchdown speeds above 170 KIAS use maximum effort braking and delay drag chute deployment (and rotation to three-point attitude) until deceleration to 170 KIAS.

LANDING SPEED

Final approach and touchdown airspeeds are given in figure C7-1. Both airspeeds are based on 13 degrees AOA, matching the AOA indexer on speed indication.

SAMPLE PROBLEM.

A.	GW	=	20,000 pounds
B.	Touchdown speed	=	125 KIAS
C.	Final approach speed	=	136 KIAS

SHORT FIELD LANDING

Ground roll distance for minimum distance landing is given in figure C7-2 (sheets 1 through 6).

Data for measured runway condition readings (RCR) not provided on charts can be obtained by interpolation. For wet runways, interpolate between RCR 18 (WET), RCR 12 (WET), and RCR 10 (WET). For runways with no liquid water present, interpolate between RCR 23 (DRY CONCRETE), RCR 16 (DRY), RCR 8 (SNOW), and RCR 4 (ICY). If RCR is unknown and runway is wet, use RCR 18 (WET) for wet concrete and RCR 12 (WET) for wet asphalt.

REFER TO FIGURE C7-2.

Enter sheet 1 with pressure altitude (A), proceed to the right to temperature (B), down to GW (C), and finally to the right and read uncorrected ground roll distance (D). Enter sheets 2 and 3 with uncorrected ground roll distance (D). Continue to the right to the reported RCR (E) or (I), proceed down to baseline and follow guidelines to wind (F), and then proceed down to baseline and follow guidelines to slope (G). Finally, proceed down to read corrected ground roll distance (H) or (J).

Short field landing with drag chute is shown on sheets 4 through 6.

SAMPLE PROBLEM (SHEET 1).

A. Altitude = 2000 feet
B. Temperature = 40°C
C. GW = 28,000 pounds
D. Uncorrected ground roll distance:
- PRI = 3929 feet
- SEC (3929 × 1.105) = 4342 feet

SAMPLE PROBLEM (SHEET 2).

D. Uncorrected ground roll distance (PRI) = 3929 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 3398 feet
I. RCR = 4
J. Corrected ground roll distance = 8309 feet

SAMPLE PROBLEM (SHEET 3).

D. Uncorrected ground roll distance (SEC) = 4342 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 3732 feet
I. RCR = 8
J. Corrected ground roll distance = 6672 feet

SAMPLE PROBLEM (SHEET 4).

A. Altitude = 2000 feet
B. Temperature = 40°C
C. GW = 28,000 pounds
D. Uncorrected ground roll distance:
- PRI = 2514 feet
- SEC (2514 × 1.06) = 2665 feet

SAMPLE PROBLEM (SHEET 5).

D. Uncorrected ground roll distance (PRI) = 2514 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 2117 feet
I. RCR = 4
J. Corrected ground roll distance = 3883 feet

SAMPLE PROBLEM (SHEET 6).

D. Uncorrected ground roll distance (SEC) = 2665 feet
E. RCR = 16
F. Wind = 10 knots (headwind)
G. Slope = 1 percent (uphill)
H. Corrected ground roll distance = 2260 feet
I. RCR = 4
J. Corrected ground roll distance = 5183 feet

Landing Speed

DATA BASIS ESTIMATED

CONFIGURATION:
- ALL DRAG INDEXES

CONDITIONS:
- ALL TEMPERATURES
- ALL ALTITUDES
- 13 DEGREES AOA (INDEXER ON SPEED)

NOTE:
THE BASELINE AIRSPEEDS ARE BASED ON THE BASIC OPERATING WEIGHT PLUS FULL AMMO. ACTUAL APPROACH AIRSPEED AT 13 DEGREES AOA MAY DIFFER BY +/–5 KNOTS DUE TO VARIATIONS IN AIRCRAFT CG.

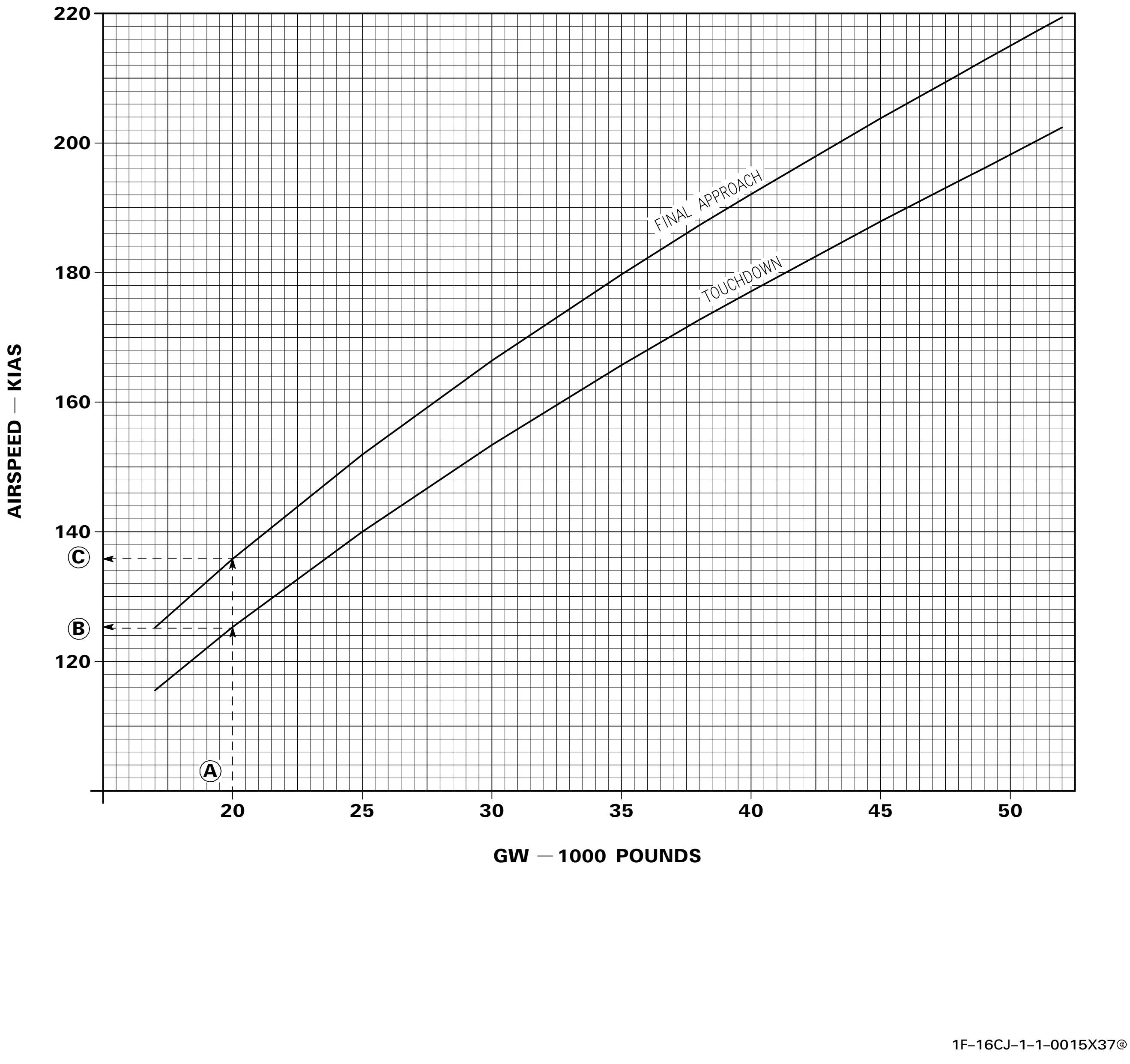


Figure C7-1.

Short Field Landing Distance (Uncorrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES —OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- ZERO WIND AND SLOPE
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- DRY CONCRETE RUNWAY

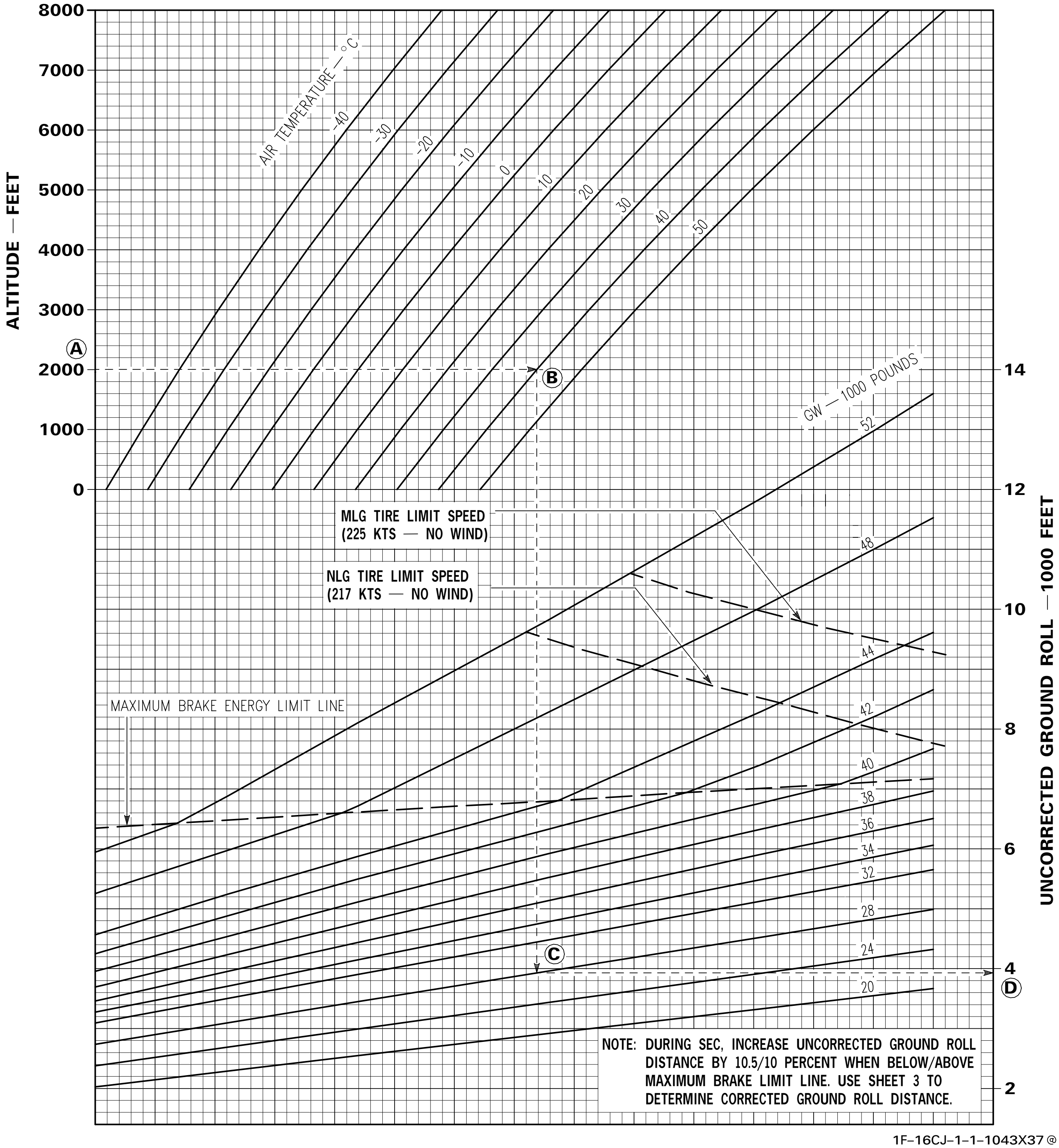


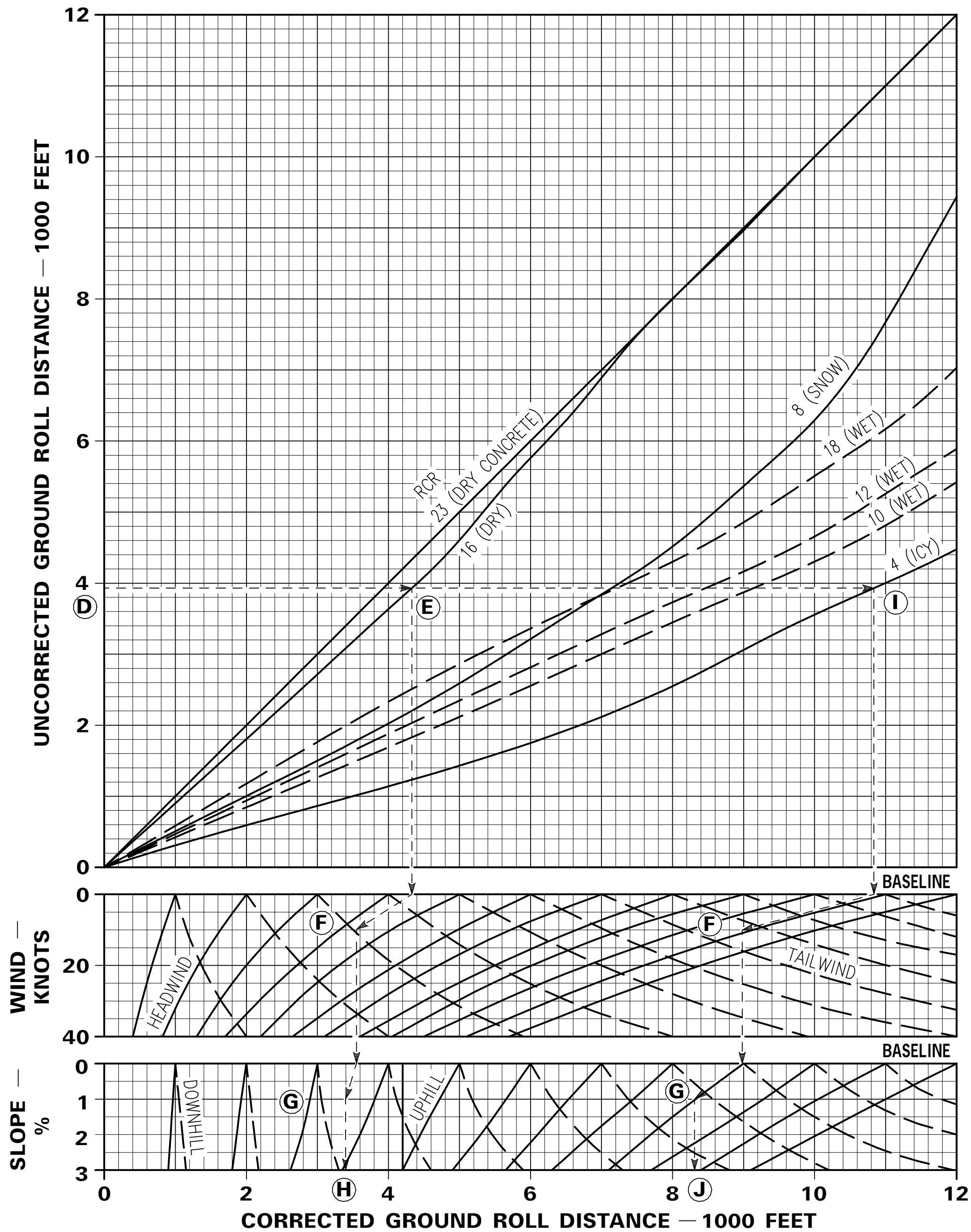
Figure C7-2. (Sheet 1)

Short Field Landing Distance (Corrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 1



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Figure C7-2. (Sheet 2)

Short Field Landing Distance — SEC (Corrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE

WARNING

ON AN ICY RUNWAY (RCR = 4) WITH SEC, THE STOPPING DISTANCE WITH ZERO HEADWIND EXCEEDS 14,000 FEET.

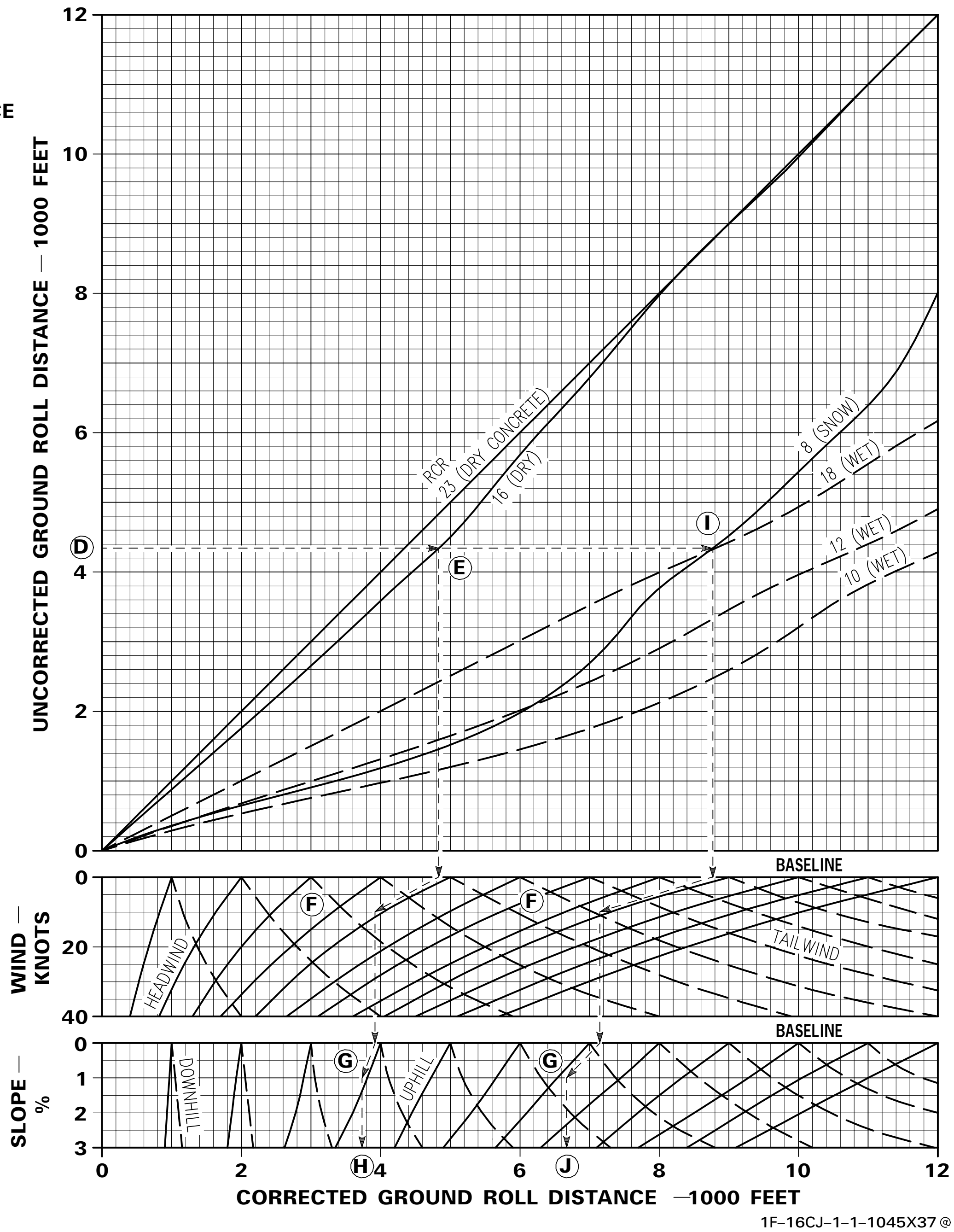


Figure C7-2. (Sheet 3)

Short Field Landing Distance — With Drag Chute (Uncorrected)

DATA BASIS ESTIMATED | **ENGINE F100-PW-229/CFT**

CONFIGURATION:

- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:

- TOUCHDOWN AT 13 DEGREES AOA
- ZERO WIND AND SLOPE
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- DRY CONCRETE RUNWAY

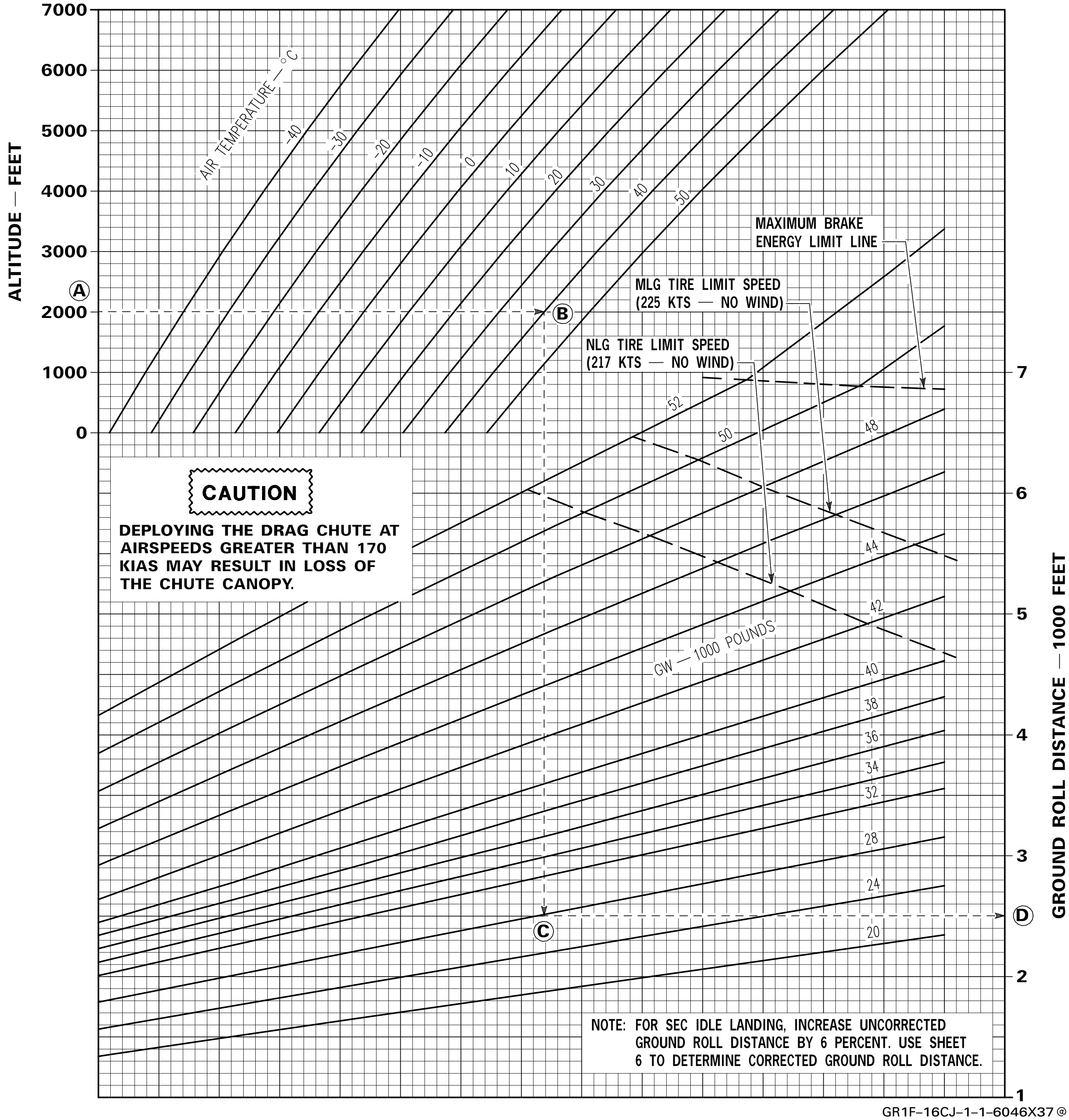


Figure C7-2. (Sheet 4)

Short Field Landing Distance — With Drag Chute (Corrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 4

CAUTION

DEPLOYING THE DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

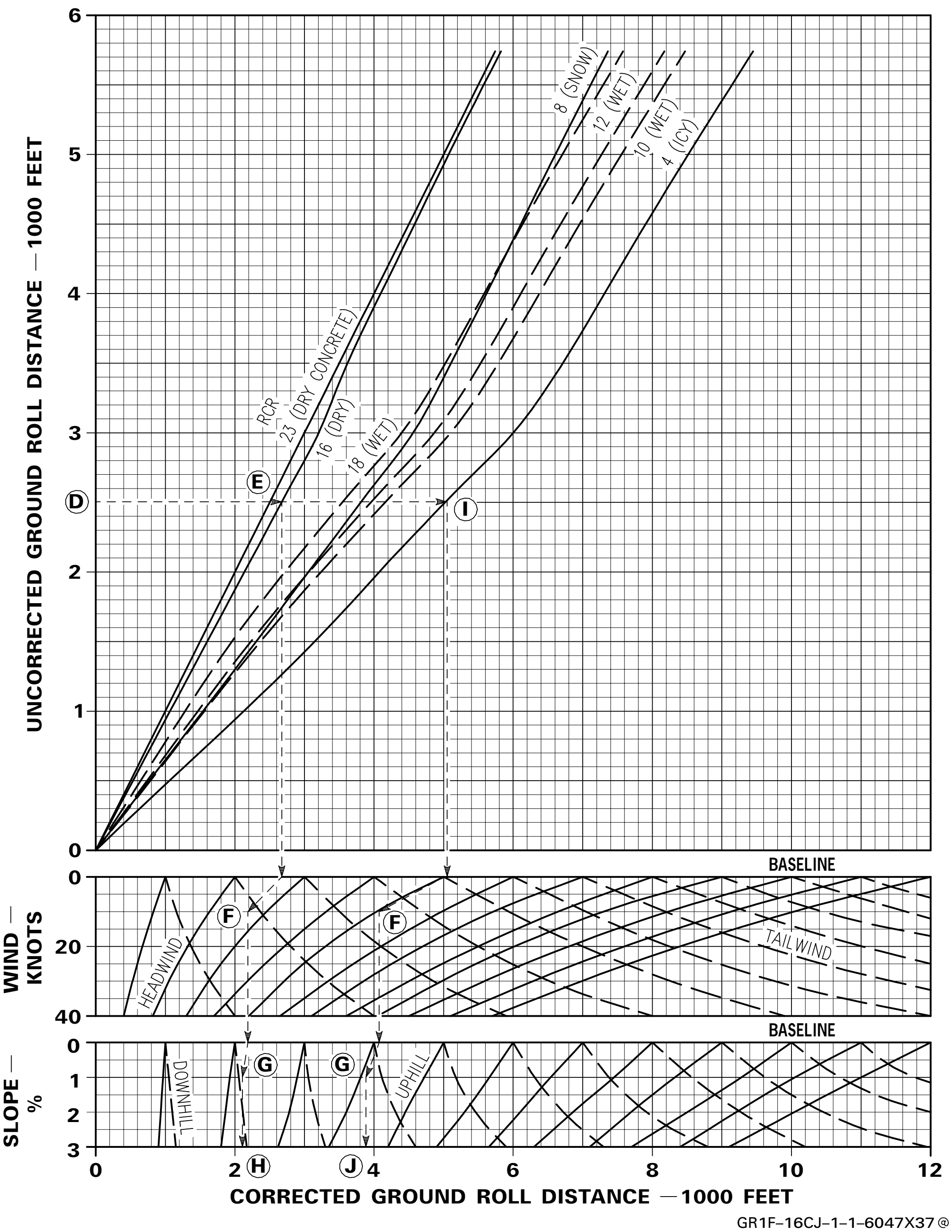


Figure C7-2. (Sheet 5)

Short Field Landing Distance — SEC With Drag Chute (Corrected)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- ALL DRAG INDEXES
- SPEEDBRAKES — OPEN
- DRAG CHUTE — DEPLOYED BELOW 170 KIAS

CONDITIONS:
- TOUCHDOWN AT 13 DEGREES AOA
- IDLE SELECTED AT TOUCHDOWN
- MAX EFFORT BRAKING
- ENTER CHART WITH UNCORRECTED GROUND ROLL DISTANCE FROM SHEET 4

WARNING

ON AN ICY RUNWAY (RCR=4) WITH SEC, THE STOPPING DISTANCE WITH ZERO HEADWIND MAY EXCEED 12,000 FEET.

CAUTION

DEPLOYING THE DRAG CHUTE AT AIRSPEEDS GREATER THAN 170 KIAS MAY RESULT IN LOSS OF THE CHUTE CANOPY.

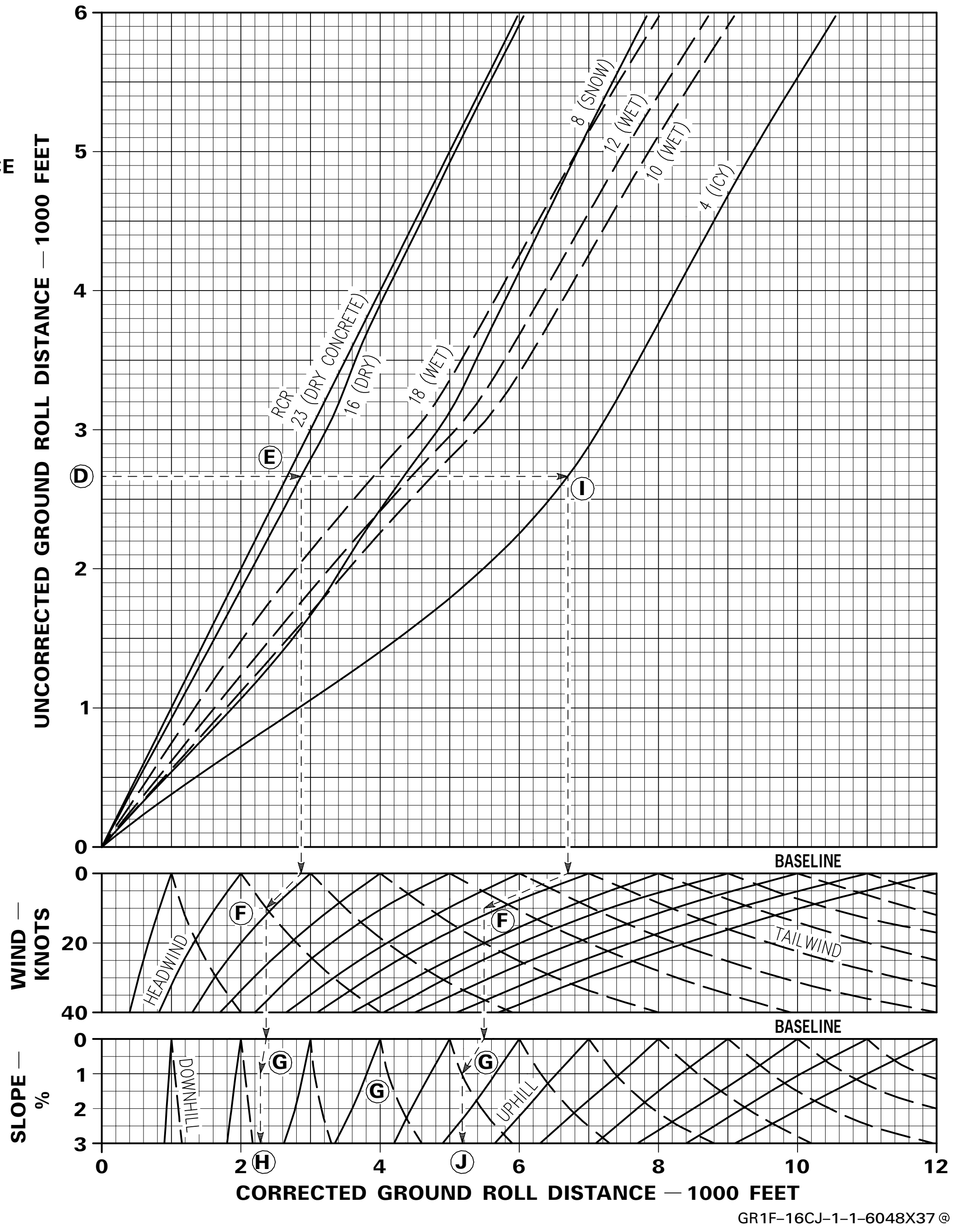


Figure C7-2. (Sheet 6)

PART 8 – COMBAT

TABLE OF CONTENTS

LIST OF CHARTS

COMBAT CEILINGS AND OPTIMUM CRUISE ALTITUDE

Combat ceiling and optimum cruise altitude data is shown in figure C8-1. All data is based on use of optimum cruise mach number. Correction factors to adjust MIL combat ceiling to cruise or service ceilings are given on the chart.

REFER TO FIGURE C8-1.

For standard day, enter upper portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read cruise altitude (C). Enter lower portion of the chart with GW (A), proceed upward to drag index (B), and then proceed to the left to read combat ceiling (D).

For MIL cruise ceiling, add 665 feet to MIL combat ceiling. For MIL service ceiling, add 1330 feet to MIL combat ceiling.

SAMPLE PROBLEM.

A.	GW	=	33,000 pounds
B.	Drag index	=	230
C.	Cruise altitude	=	33,045 feet
D.	MIL combat ceiling (500 fpm)	=	33,430 feet
•	MIL cruise ceiling (300 fpm)	=	34,095 feet
•	MIL service ceiling (100 fpm)	=	34,760 feet

LEVEL FLIGHT COMBAT SPEEDS AND ALTITUDES

Combat speed and altitude envelopes are shown in figure C8-2 (sheets 1 through 4) for MIL and MAX AB. All data shown reflects speed/altitude conditions where 500 fpm climb potential remains at the specified thrust setting.

REFER TO FIGURE C8-2, SHEET 1.

Enter the plot labeled with the appropriate drag index with altitude (A); proceed to the right to GW (B) and then down to read mach number (C). Reverse this process to find maximum altitude.

SAMPLE PROBLEM.

•	Drag index	=	50
A.	Altitude	=	40,000 feet
B.	GW	=	24,000 pounds
C.	Maximum mach:		
	• MIL	=	0.94
	• MAX AB	=	1.78

For nonstandard day, use the adjustments noted in figure C8-3 at or below 30,000 feet. For altitudes above 30,000 feet, nonstandard day operations are not shown since the altitude as well as mach number is affected by temperature changes.

LEVEL FLIGHT COMBAT SPEED

Maximum speed capabilities for MIL and MAX AB during level flight are provided as indicated airspeed in tabular form in figure C8-3. The data is presented as a function of altitude and drag index with temperature effects shown as correction increments. No GW effects are shown because speed capability is not significantly affected by weight in the altitude range shown.

REFER TO FIGURE C8-3.

Enter the table with thrust, altitude, and drag index and read indicated airspeed at standard day temperature. The resulting value is the maximum attainable airspeed in level flight under the given conditions. Temperature corrections are found in the bottom half of figure C8-3. Enter the table with altitude and drag index and read the temperature correction. The correction increments are given for a 20°C deviation from standard. For other temperature deviations, determine ratio of the table values.

SAMPLE PROBLEM.

•	Thrust	=	MIL
•	Altitude	=	15,000 feet
•	Drag index	=	100
•	Maximum indicated airspeed, standard day	=	486 knots
•	Standard day temperature	=	–15°C
•	Ambient temperature	=	–10°C
•	Temperature deviation	=	5°C hot
•	Indicated airspeed for +20°C temperature deviation at 15,000 feet and DI = 100	=	–10 knots
•	Maximum indicated airspeed for ambient temperature of –10°C	=	486 – (10 × 5/20) = 484 knots

FUEL FLOW (MIL AND MAX AB)

Fuel flow data for MIL and MAX AB thrust is given in figure C8-4. The data may be used to estimate fuel consumption at combat conditions. For instance, a MAX AB turn at 1.6 mach and 30,000 feet altitude consumes 54,340 pounds of fuel per hour or (54,340 ÷ 60) = 906 pounds of fuel every minute.

MIL ACCELERATION

MIL acceleration performance from 200 KIAS to combat speed is given in figures C8-5, C8-6, C8-7, and C8-8 for sea level and 10,000, 20,000, and 30,000 feet altitude, respectively. The data in these charts covers the subsonic and transonic flight region for drag indexes up to 250 and is presented as a function of altitude, drag index, and GW with temperature effects shown as factors.

REFER TO FIGURE C8-5.

To find the time, distance, and fuel consumed in a constant altitude acceleration, enter the table with drag index, GW, and initial airspeed. Then read time/distance/fuel consumed. Next, enter the table with the final airspeed and read time/distance/fuel consumed. The difference between the two sets of data is then the time/distance/fuel consumed for the acceleration. Temperature effects factors are found on the right side of each chart. Multiply the standard day time/distance/fuel consumed initial and final conditions by their respective factors to get initial and final

conditions for ±20°C deviation from standard. To compute the time/distance/fuel consumed for other temperatures, simply ratio the difference between standard day values and ±20°C values for the particular temperature deviation. The difference between initial and final conditions is the time/distance/fuel consumed in acceleration for nonstandard day temperature.

SAMPLE PROBLEM.

A.	Altitude	=	SL
B.	Drag index	=	0
C.	GW	=	20,000 pounds
D.	Standard day temperature	=	15°C
E.	Ambient temperature	=	22°C
F.	Temperature deviation	=	7°C hot
G.	Initial airspeed	=	300 KIAS
H.	Final airspeed	=	600 KIAS

FIND FUEL CONSUMED:

I.	Fuel at initial condition (STD)	=	31 pounds
J.	Temperature effect factor at +20°C	=	1.08
K.	Fuel at initial condition is 1.08 × 31 for +20°C	=	33.5 pounds
L.	Fuel at initial condition for 7°C is 31 + (2.5 × 7/20)	=	31.9 pounds
M.	Fuel at final conditions (STD)	=	158 pounds
N.	Temperature effect factor at +20°C	=	1.19
O.	Fuel at final condition is 1.19 × 158 for +20°C	=	188 pounds
P.	Fuel at final condition for 7°C is 158 + (30 × 7/20)	=	168.5 pounds
Q.	Fuel consumed (168.5 – 31.9)	=	136.6 pounds

The above method also applies to computing time and range for the acceleration.

MAX AB ACCELERATION

MAX AB acceleration performance from 200 KIAS to combat speed is given in figures C8-9, C8-10, C8-11, C8-12, and C8-13 for sea level and 10,000, 20,000, 30,000, and 40,000 feet altitude, respectively. The data in these charts covers the subsonic, transonic, and supersonic flight region for drag indexes up to 250 and is presented as a function of altitude, drag index, and GW with temperature effects shown as factors. Refer to MIL ACCELERATION for procedures.

TURN PERFORMANCE

Figures C8-14 through C8-64 contain constant altitude and drag index turn performance data plotted versus mach for lines of constant energy rate (Ps). Lines of load factor and turn radius are superimposed on each chart. Correction insets containing GW and temperature effects are also included on each chart. Altitudes range from sea level to 30,000 feet for MIL standard day thrust and sea level to 50,000 feet for MAX AB standard day thrust. Both MIL and MAX AB thrust charts contain drag indexes of 0 through 200 and varying GW's. The boundaries of the data are defined by the CAT I or CAT III AOA limiters, load factor limits, maximum aft stick limits, maximum airspeed (Ps = 0 at 1g), and limit airspeed. Within these boundaries, the data defines how much Ps remains at any load factor, mach, or turn rate. On figure C8-37, for instance, the Ps lines show that 0.9 mach is an ideal speed for maneuvering and increasing energy (climbing) simultaneously. At 9g, Ps is almost 420 fps or an instantaneous rate of climb of almost 25,200 fpm. At the same load factor, however, turn radius can be reduced by making the turn at 0.7 mach while still maintaining airspeed and altitude (Ps = 0). The quickest turn occurs at about 8g, 0.55 mach. Note, however, Ps is less than 0 (Ps < –500 fps) indicating either speed or altitude must be decreased to maintain the turn. In this case, the turn condition is limited by the CAT I limiter. Speed decays at constant altitude, and load factor decreases along the CAT I limit line until Ps = 0 is reached at about 3.6g, 0.35 mach. The effects of varying GW's or nonstandard temperatures may also be included, as in the example below. A close study of the turn performance charts assists in forming a picture of the interrelationships between maneuverability, speed, altitude, energy rate, etc.

REFER TO FIGURE C8-37.

Enter the chart with mach number (A), proceed vertically to desired Ps (B), and proceed horizontally to read turn rate (C). Enter GW Effect inset at desired GW (D), proceed vertically to mach number (A), and then left horizontally to read Δ turn rate (E). Enter Temperature Effect inset at temperature deviation from standard day value (F), proceed vertically to mach number (A), and then horizontally to read Δ turn rate (G). Combine (E), (G), and (C) to obtain a corrected turn rate (H). With the corrected turn rate, proceed horizontally back to mach number (A) to define the new location of the Ps line. Read the turn radius (I). Enter Radius Temperature Effect inset at standard temperature deviation value (F); proceed vertically to line and then horizontally to read turn radius factor (J). Multiply turn radius and turn radius factor to obtain corrected turn radius (K).

NOTE

The accuracy of GW and temperature corrections to turn rate is considerably degraded when large (steep) Ps line slopes are encountered.

SAMPLE PROBLEM.

A.	Mach number	=	0.60
B.	Ps	=	0 (level turn)
C.	Turn rate	=	20.9 degrees/second
D.	GW	=	24,000 pounds
E.	Δ Turn rate	=	−1.7 degrees/second
F.	Temp dev from std day	=	+20°C
G.	Δ Turn rate	=	−2.1 degrees/second
H.	Corrected turn rate = 20.9 – 1.7 – 2.1	=	17.0 degrees/second (at Ps = 0)
I.	Turn radius	=	1841 feet
J.	Turn radius factor	=	1.069
K.	Corrected turn radius 1841 feet × 1.069	=	1968 feet

DECELERATION

Level 1g deceleration performance is shown in figure C8-65 for 20,000, 30,000, and 40,000 feet altitude, respectively. Sufficient drag index lines are provided to cover most supersonic loadings plus a line representing speedbrakes open at aircraft drag index = 0.

REFER TO FIGURE C8-65.

Enter top portion of chart with initial mach number (A), proceed vertically to drag index (B), proceed horizontally to the right to weight baseline and follow guidelines to GW (C), and finally proceed horizontally to the right to read fuel consumed (D). Repeat this process in the remaining portions of the chart to determine distance (E) and time (F) to decelerate. Repeat the entire procedure substituting final mach for initial mach and subtract the result from the first set of data to obtain fuel used, distance, and time to decelerate from initial to final mach.

SAMPLE PROBLEM (20,000 FEET).

A.	Initial mach	=	1.5
B.	Drag index*	=	20
C.	GW	=	26,000 pounds
D.	Fuel used	=	97 pounds
E.	Distance	=	17.4 nm
F.	Time	=	1.88 minutes

* Example drag index

The above data is for a deceleration from 1.5 to 0.6 mach. If the deceleration is stopped at 0.7 mach:

G.	Fuel used	=	97 – 6.9 = 90.1 pounds
H.	Distance	=	17.4 – 3.1 = 14.3 nm
I.	Time	=	1.88 – 0.45 = 1.43 minutes

Combat Ceilings and Optimum Cruise Altitude

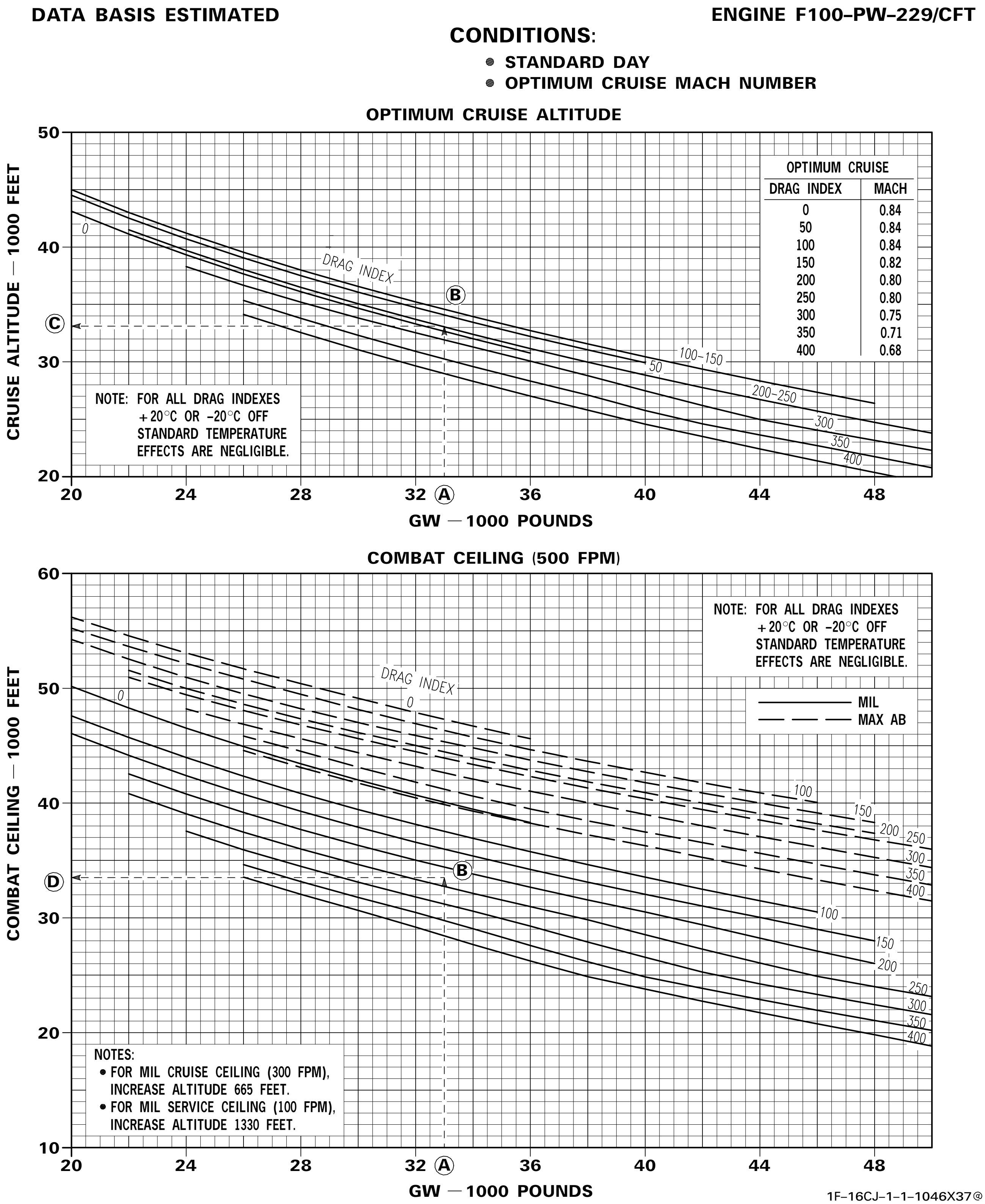


Figure C8-1.

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

NOTES:
- FOR NONSTANDARD DAY, REFER TO FIGURE C8–3 TO ADJUST AIR–SPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIR–SPEED LIMITATIONS.

CONDITIONS:
- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST

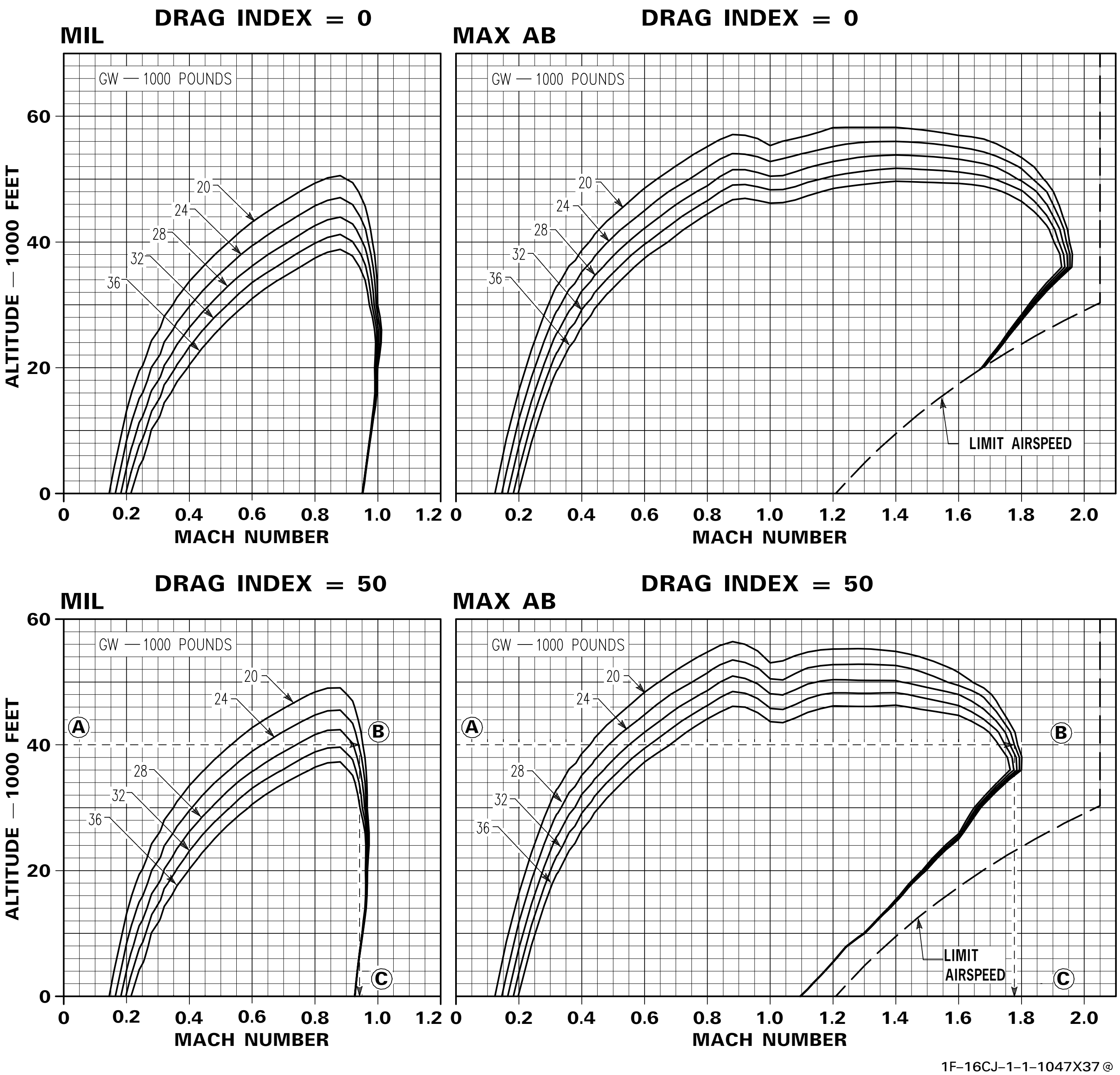


Figure C8-2. (Sheet 1)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

NOTES:
- FOR NONSTANDARD DAY, REFER TO FIGURE C8–3 TO ADJUST AIRSPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

CONDITIONS:
- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST

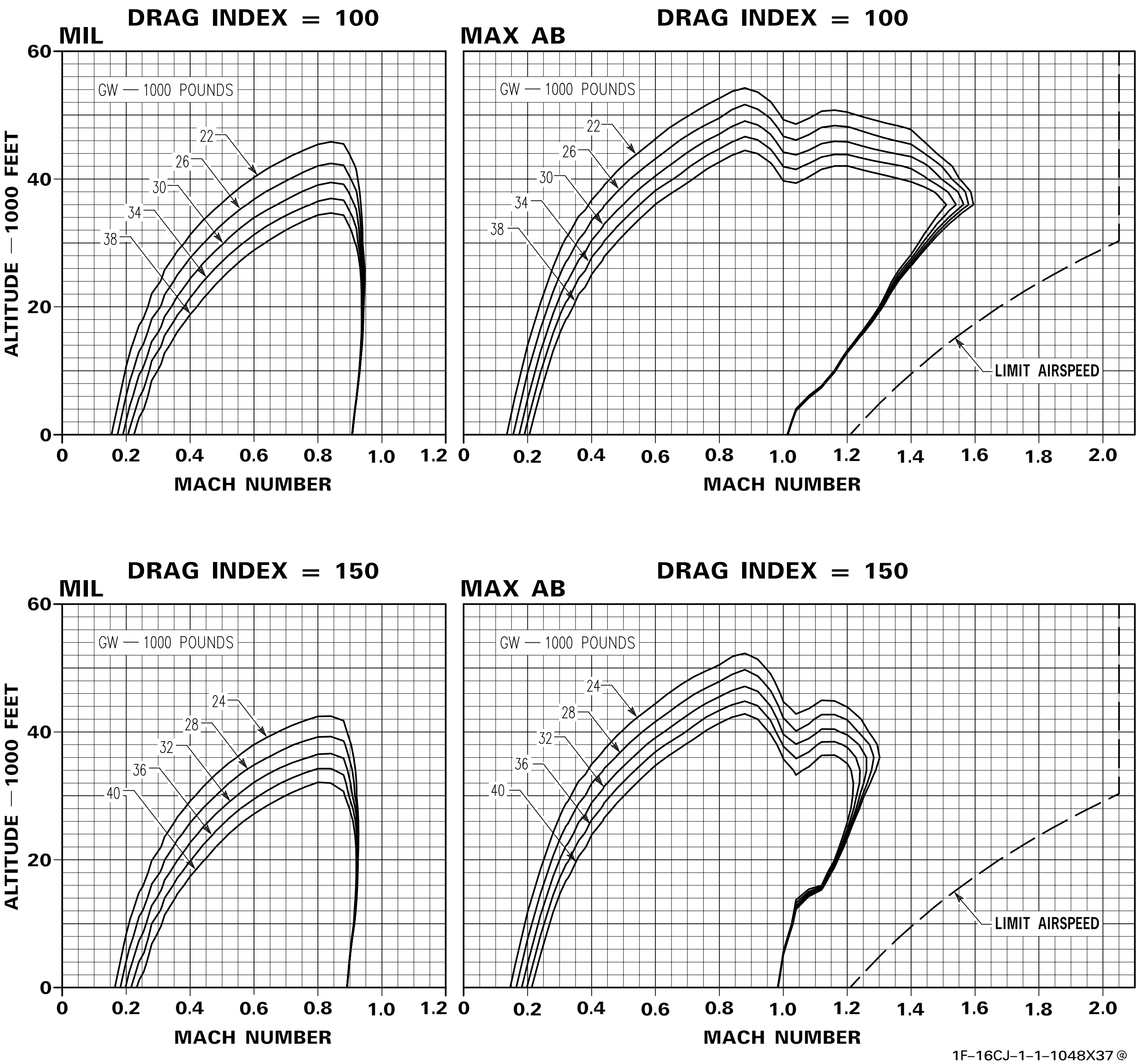


Figure C8-2. (Sheet 2)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS ESTIMATED

ENGINE F100–PW–229/CFT

NOTES:
- FOR NONSTANDARD DAY, REFER TO FIGURE C8–3 TO ADJUST AIRSPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.
- REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

CONDITIONS:
- STANDARD DAY
- 1G
- 500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST

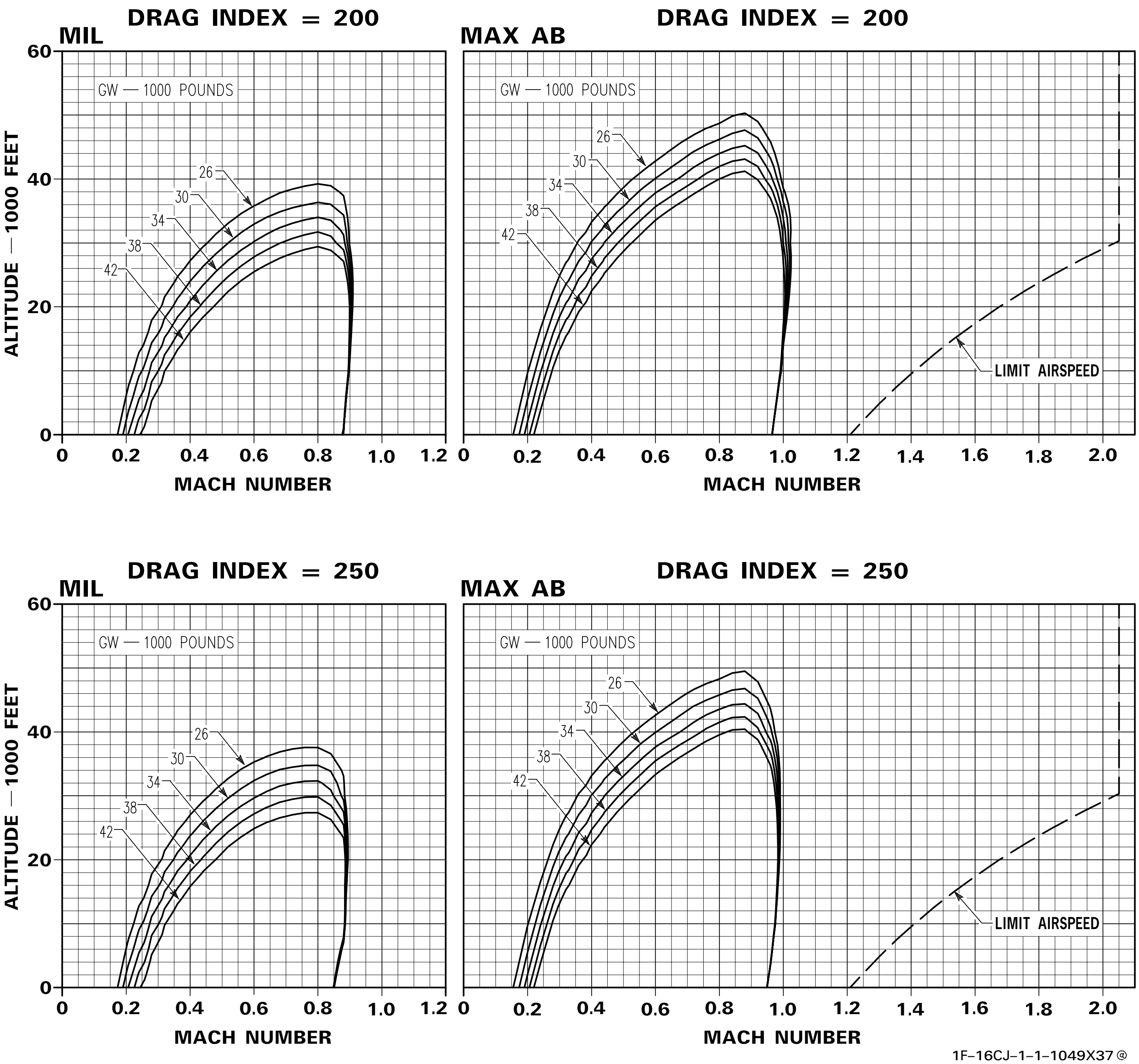


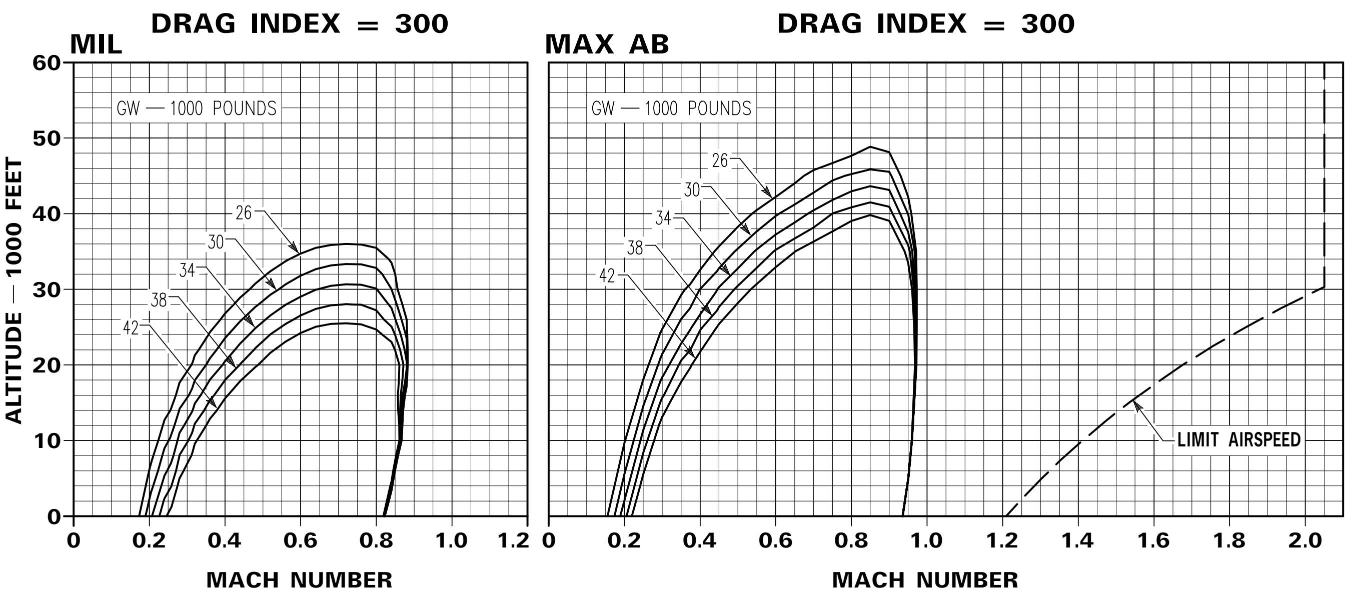
Figure C8-2. (Sheet 3)

Level Flight Combat Speeds and Altitudes (MIL/MAX AB)

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

NOTES:
- **FOR NONSTANDARD DAY, REFER TO FIGURE C8–3 TO ADJUST AIR-SPEED BELOW 30,000 FEET. ABOVE 30,000 FEET, REFER TO TEXT.**
- **REFER TO SECTION V FOR AIRSPEED LIMITATIONS.**

CONDITIONS:
- **STANDARD DAY**
- **1G**
- **500 FPM CLIMB POTENTIAL REMAINING AT SPECIFIED THRUST**



1F–16CJ–1–1–1050X37 @

Figure C8-2. (Sheet 4)

Level Flight Combat Speed (MIL/MAX AB)

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **ALL GW'S**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

MIL

STANDARD TEMPERATURE °C	ALTITUDE FEET	INDICATED AIRSPEED − KNOTS						
		DRAG INDEX 0	50	100	150	200	250	300
+15	SL	630	613	602	592	581	565	544
+5	5,000	592	575	562	553	543	533	516
−5	10,000	554	538	525	516	509	499	488
−15	15,000	516	500	486	476	468	459	447
−25	20,000	473	457	445	436	429	423	
−35	25,000	434	417	405	395	387		
−44	30,000							

Δ INDICATED AIRSPEED − KNOTS

*	SL	1/−13	2/−12	1/−15	2/−23	2−36	6/−42	11/−41
	5,000	8/−15	9/−13	9/−11	9/−15	11/−23	14/−34	23/−36
	10,000	16/−13	10/−13	8/−11	6/−12	4/−18	7/−24	8/−30
	15,000	8/−13	3/−12	3/−10	2/−9	2/−11	4/−16	5/−21
	20,000	3/−9	1/−7	1/−7	0/−7	0/−7	0/−12	
	25,000	−1/−10	−1/−6	−1/−4	0/−3	0/−2		
	30,000							

MAX AB

STANDARD TEMPERATURE °C	ALTITUDE FEET	INDICATED AIRSPEED − KNOTS						
		DRAG INDEX 0	50	100	150	200	250	300
+15	SL	**800	728	671	651	638	629	620
+5	5,000	**800	735	647	613	600	590	582
−5	10,000	**800	741	662	583	562	552	543
−15	15,000	**800	735	650	582	520	510	501
−25	20,000	**800	719	633	562	480	468	461
−35	25,000	767	703		531		425	418
−44	30,000	729					383	376

Δ INDICATED AIRSPEED − KNOTS

*	SL	**0/**33	10/−43	4/−17	2/−11	3/−10	2/−11	2/−11
	5,000	**0/−49	11/−74	40/−34	10/−15	6/−13	6/−13	5/−13
	10,000	**0/−57	27/−82	34/−83	60/−25	13/−15	7/−13	7/−12
	15,000	**0/−67	59/−89	60/−96	60/−62	17/−12	7/−11	7/−9
	20,000	**0/−90	**81/−93	81/−76	57/−78	64/−11	5/−8	4/−8
	25,000	**33/−80	81/−97		51/−86		3/−6	3/−6
	30,000	**71/−73					3/−4	3/−3

*TEMPERATURE DEVIATION FROM STANDARD = −20°C/+20°C.
**LIMIT AIRSPEED

Figure C8-3.

Fuel Flow (MIL/MAX AB)

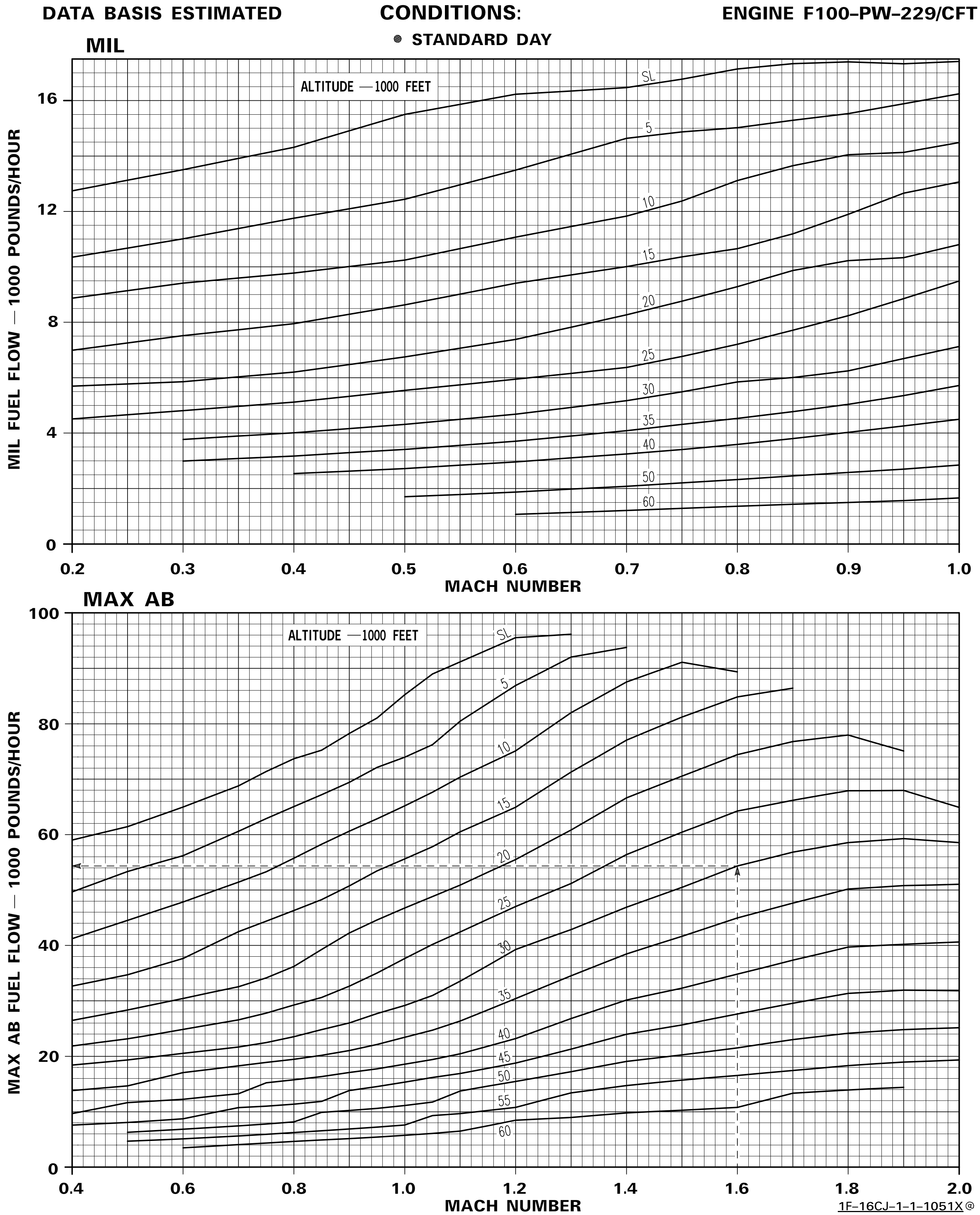


Figure C8-4.

MIL Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.2/15	5/0.3/19	6/0.4/23	7/0.4/27	8/0.5/32	1.15/1.19/1.08	0.95/0.91/0.93
	300	0.45	8/0.5/31	10/0.7/37	11/0.8/45	14/0.9/54	16/1.1/63	1.17/1.21/1.08	0.94/0.91/0.93
	350	0.53	12/0.9/47	14/1.1/57	17/1.3/69	20/1.5/81	23/1.8/95	1.19/1.24/1.08	0.94/0.91/0.93
	400	0.60	16/1.3/64	19/1.6/79	23/1.9/94	27/2.2/110	31/2.5/128	1.21/1.26/1.09	0.93/0.89/0.93
	450	0.68	20/1.8/83	24/2.2/101	29/2.6/120	33/3.0/141	39/3.5/163	1.23/1.29/1.10	0.91/0.87/0.93
	500	0.76	24/2.4/104	29/2.9/126	35/3.4/150	41/4.0/175	47/4.6/201	1.25/1.31/1.12	0.89/0.85/0.92
	550	0.83	29/3.1/128	35/3.8/155	42/4.5/184	49/5.2/213	56/5.9/245	1.29/1.36/1.14	0.88/0.84/0.91
	600	0.91	35/4.1/158	43/5.0/191	51/5.9/226	59/6.8/262	68/7.7/300	1.35/1.45/1.19	0.89/0.85/0.91
	CMBT SPD KIAS/MACH		55/7.4/250	65/8.7/297	75/10.1/344	86/11.4/392	97/12.8/440	1.22/1.25/1.07	0.90/0.87/0.91
			631/0.95	630/0.95	630/0.95	630/0.95	630/0.95	0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 36,000 LB	40,000 LB	44,000 LB			TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	8/0.5/32	10/0.6/39	12/0.8/47			1.17/1.21/1.10	0.94/0.91/0.92
	300	0.45	16/1.1/63	19/1.3/74	22/1.5/88			1.19/1.23/1.10	0.94/0.91/0.92
	350	0.53	23/1.8/95	27/2.1/110	32/2.4/128			1.21/1.26/1.10	0.94/0.90/0.92
	400	0.60	31/2.5/128	36/2.9/147	41/3.4/170			1.23/1.28/1.11	0.93/0.89/0.93
	450	0.68	39/3.5/163	44/4.0/187	51/4.5/214			1.25/1.30/1.12	0.91/0.87/0.92
	500	0.76	47/4.6/201	54/5.2/230	62/5.9/263			1.27/1.33/1.13	0.89/0.85/0.92
	550	0.83	56/5.9/245	64/6.7/279	73/7.6/317			1.30/1.37/1.15	0.88/0.84/0.91
	600	0.91	68/7.7/300	77/8.8/341	87/9.8/385			1.36/1.46/1.20	0.88/0.84/0.91
	CMBT SPD KIAS/MACH		97/12.8/440	108/14.1/491	120/15.6/546			1.23/1.25/1.07	0.90/0.87/0.91
			630/0.95	629/0.95	629/0.95			0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.2/15	5/0.3/19	6/0.4/23	7/0.4/28	9/0.5/33	1.15/1.19/1.08	0.95/0.91/0.93
	300	0.45	8/0.5/31	10/0.7/38	12/0.8/46	14/1.0/55	16/1.1/64	1.17/1.21/1.08	0.94/0.91/0.93
	350	0.53	12/0.9/48	15/1.1/59	17/1.3/70	21/1.6/83	24/1.8/97	1.19/1.24/1.09	0.94/0.91/0.93
	400	0.60	16/1.3/66	20/1.6/81	23/1.9/97	27/2.3/113	32/2.6/132	1.22/1.27/1.10	0.93/0.89/0.93
	450	0.68	20/1.9/87	25/2.3/105	30/2.7/125	35/3.1/146	40/3.6/169	1.25/1.30/1.12	0.91/0.87/0.92
	500	0.76	25/2.5/110	31/3.1/133	37/3.6/158	43/4.2/184	49/4.8/212	1.27/1.34/1.14	0.89/0.84/0.92
	550	0.83	31/3.4/137	38/4.1/167	45/4.8/197	52/5.6/229	60/6.4/263	1.33/1.41/1.18	0.87/0.83/0.91
	600	0.91	40/4.7/178	48/5.7/216	57/6.7/254	66/7.8/295	76/8.9/337	1.56/1.73/1.38	0.87/0.83/0.90
	CMBT SPD KIAS/MACH		53/7.1/244	64/8.3/290	74/9.6/336	84/10.9/384	95/12.2/433	1.28/1.32/1.11	0.89/0.86/0.91
			614/0.93	614/0.93	614/0.93	613/0.93	613/0.93	0.98/0.98	1.00/1.00

Figure C8-5. (Sheet 1)

MIL Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 36,000 LB	40,000 LB	44,000 LB			TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	9/0.5/33	10/0.6/40	12/0.8/48			1.18/1.22/1.11	0.94/0.91/0.92
	300	0.45	16/1.1/64	19/1.3/76	23/1.6/90			1.19/1.24/1.10	0.94/0.91/0.92
	350	0.53	24/1.8/97	28/2.1/113	33/2.5/132			1.22/1.26/1.11	0.94/0.90/0.92
	400	0.60	32/2.6/132	37/3.0/152	43/3.5/176			1.24/1.29/1.12	0.93/0.89/0.92
	450	0.68	40/3.6/169	46/4.1/195	53/4.7/223			1.26/1.32/1.13	0.91/0.87/0.92
	500	0.76	49/4.8/212	57/5.5/243	65/6.3/277			1.29/1.35/1.15	0.88/0.84/0.91
	550	0.83	60/6.4/263	69/7.3/300	78/8.2/340			1.34/1.42/1.19	0.87/0.83/0.90
	600	0.91	76/8.9/337	86/10.0/383	97/11.3/432			1.58/1.75/1.40	0.87/0.83/0.90
	CMBT SPD KIAS/MACH		95/12.2/433	107/13.6/484	119/15.0/539			1.30/1.34/1.13	0.89/0.86/0.91
			613/0.93	613/0.93	613/0.93			0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.3/16	5/0.3/19	6/0.4/23	7/0.5/28	9/0.5/34	1.15/1.19/1.08	0.95/0.91/0.93
	300	0.45	8/0.6/32	10/0.7/39	12/0.8/47	14/1.0/56	17/1.2/66	1.17/1.22/1.08	0.94/0.91/0.93
	350	0.53	12/0.9/49	15/1.1/60	18/1.4/72	21/1.6/85	25/1.9/99	1.20/1.25/1.09	0.94/0.91/0.93
	400	0.60	17/1.4/69	20/1.7/84	24/2.0/100	28/2.3/117	33/2.7/136	1.23/1.28/1.11	0.93/0.89/0.93
	450	0.68	21/1.9/90	26/2.4/110	31/2.8/131	36/3.3/153	42/3.8/177	1.26/1.32/1.13	0.90/0.86/0.92
	500	0.76	27/2.7/116	33/3.3/141	39/3.9/167	45/4.5/195	52/5.2/225	1.30/1.37/1.16	0.88/0.83/0.91
	550	0.83	34/3.7/149	41/4.5/181	49/5.3/214	57/6.1/249	65/7.0/286	1.39/1.49/1.23	0.86/0.82/0.89
	600	0.91	49/6.1/221	59/7.3/266	69/8.6/313	80/10.0/362	92/11.4/414		0.84/0.80/0.86
	CMBT SPD KIAS/MACH		54/7.0/248	65/8.4/296	76/9.7/344	87/11.1/394	98/12.5/446	1.41/1.47/1.23	0.88/0.85/0.90
			602/0.91	602/0.91	602/0.91	602/0.91	602/0.91	0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 36,000 LB	40,000 LB	44,000 LB	48,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	9/0.5/34	11/0.7/40	13/0.8/49	16/1.0/61		1.19/1.23/1.12	0.94/0.91/0.92
	300	0.45	17/1.2/66	20/1.4/78	23/1.6/92	28/1.9/111		1.21/1.25/1.11	0.94/0.91/0.92
	350	0.53	25/1.9/99	29/2.2/116	34/2.5/136	40/3.0/160		1.23/1.28/1.12	0.94/0.90/0.92
	400	0.60	33/2.7/136	38/3.1/157	44/3.6/182	51/4.2/212		1.25/1.31/1.13	0.92/0.89/0.92
	450	0.68	42/3.8/177	48/4.3/203	55/5.0/233	64/5.7/269		1.28/1.34/1.15	0.90/0.86/0.92
	500	0.76	52/5.2/225	60/5.9/257	68/6.7/294	79/7.6/336		1.32/1.39/1.18	0.88/0.83/0.90
	550	0.83	65/7.0/286	74/8.0/326	84/9.0/370	96/10.2/420		1.41/1.51/1.25	0.86/0.81/0.89
	600	0.91	92/11.4/414	104/12.8/470	118/14.4/530	133/16.1/598			0.84/0.80/0.86
	CMBT SPD KIAS/MACH		98/12.5/446	111/13.9/500	124/15.4/558	138/17.0/622		1.41/1.47/1.23	0.88/0.84/0.89
			602/0.91	602/0.91	601/0.91	601/0.91		0.98/0.98	1.00/1.00

Figure C8-5. (Sheet 2)

MIL Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/20	6/0.4/24	7/0.5/28	9/0.6/34	11/0.7/41	1.16/1.20/1.09	0.94/0.91/0.92
	300	0.45	10/0.7/40	12/0.8/48	14/1.0/57	17/1.2/67	20/1.4/79	1.18/1.23/1.09	0.94/0.91/0.92
	350	0.53	15/1.2/62	18/1.4/74	22/1.6/87	25/1.9/102	30/2.2/119	1.21/1.26/1.10	0.94/0.90/0.92
	400	0.60	21/1.7/86	25/2.1/103	29/2.4/121	34/2.8/141	39/3.3/163	1.24/1.30/1.12	0.92/0.89/0.92
	450	0.68	27/2.5/115	32/3.0/137	38/3.4/160	44/4.0/185	50/4.6/213	1.28/1.35/1.15	0.90/0.86/0.92
	500	0.76	35/3.5/150	41/4.1/178	48/4.8/208	56/5.5/239	64/6.3/274	1.34/1.42/1.20	0.87/0.82/0.90
	550	0.83	45/5.0/200	54/5.9/237	62/6.9/275	72/7.9/316	82/9.0/360	1.53/1.68/1.36	0.85./0.80/0.88
	CMBT SPD KIAS/MACH		72/9.3/328	83/10.8/381	95/12.2/435	108/13.7/491	121/15.3/550	1.44/1.50/1.26	0.87/0.83/0.88
			592/0.90	592/0.90	592/0.89	592/0.89	591/0.89	0.96/0.96	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	11/0.7/41	13/0.8/50	16/1.0/63	22/1.3/83		1.22/1.26/1.14	0.94/0.90/0.92
	300	0.45	20/1.4/79	24/1.6/94	29/2.0/114	36/2.5/142		1.23/1.27/1.14	0.94/0.90/0.92
	350	0.53	30/2.2/119	35/2.8/140	41/3.1/165	50/3.7/200		1.25/1.30/1.14	0.93/0.90/0.92
	400	0.60	39/3.3/163	46/3.8/189	53/4.4/220	64/5.1/261		1.28/1.33/1.15	0.92/0.88/0.92
	450	0.68	50/4.6/213	58/5.2/244	67/6.0/282	79/6.9/330		1.31/1.38/1.18	0.90/0.85/0.91
	500	0.76	64/6.3/274	73/7.2/313	84/8.2/358	97/9.3/415		1.37/1.45/1.22	0.87/0.82/0.89
	550	0.83	82/9.0/360	93/10.1/408	106/11.4/464	122/12.9/531		1.56/1.72/1.39	0.84/0.79/0.87
	CMBT SPD KIAS/MACH		121/15.3/550	136/16.9/614	152/18.7/684	170/20.7/766		1.42/1.47/1.24	0.86/0.83/0.88
			591/0.89	591/0.89	591/0.89	591/0.89		0.96/0.96	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/20	6/0.4/24	8/0.5/29	9/0.6/35	11/0.7/42	1.16/1.20/1.09	0.94/0.91/0.92
	300	0.45	10/0.7/40	12/0.9/49	15/1.0/58	17/1.2/68	21/1.4/81	1.19/1.23/1.10	0.94/0.91/0.92
	350	0.53	16/1.2/63	19/1.4/76	22/1.7/90	26/2.0/105	30/2.3/123	1.22/1.27/1.11	0.94/0.90/0.92
	400	0.60	22/1.8/90	26/2.2/107	30/2.5/125	35/2.9/146	41/3.4/169	1.26/1.32/1.13	0.92/0.89/0.92
	450	0.68	28/2.6/121	34/3.1/143	40/3.6/168	46/4.2/194	53/4.8/223	1.31/1.38/1.17	0.89/0.85/0.91
	500	0.76	37/3.8/161	44/4.5/192	52/5.2/223	60/6.0/258	68/6.9/295	1.40/1.49/1.25	0.85/0.80/0.89
	550	0.83	51/5.9/229	61/6.9/270	71/8.0/313	81/9.2/360	93/10.4/410		0.82/0.77/0.85
	CMBT SPD KIAS/MACH		82/10.7/376	95/12.3/435	108/14.0/494	122/15.7/558	137/17.5/626	1.27/1.27/1.09	0.82/0.78/0.84
			582/0.88	582/0.88	581/0.88	581/0.88	581/0.88	0.94/0.94	1.00/1.00

Figure C8-5. (Sheet 3)

MIL Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		+20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	11/0.7/42	13/0.8/51	17/1.0/64	22/1.4/86		1.22/1.26/1.15	0.94/0.90/0.92
	300	0.45	21/1.4/81	25/1.7/97	30/2.0/117	38/2.5/147		1.24/1.28/1.14	0.94/0.90/0.92
	350	0.53	30/2.3/123	36/2.7/144	42/3.2/170	52/3.8/208		1.26/1.31/1.15	0.93/0.90/0.92
	400	0.60	41/3.4/169	47/3.9/196	55/4.5/229	66/5.3/273		1.29/1.35/1.17	0.92/0.88/0.92
	450	0.68	53/4.8/223	61/5.5/257	71/6.3/297	83/7.3/349		1.34/1.41/1.20	0.89/0.85/0.90
	500	0.76	68/6.9/295	78/7.8/337	90/8.9/386	105/10.2/448		1.43/1.53/1.28	0.85/0.80/0.88
	550	0.83	93/10.4/410	105/11.8/466	120/13.3/529	138/15.1/606			0.82/0.76/0.84
	CMBT SPD KIAS/MACH		137/17.5/626	154/19.5/700	172/21.6/782	194/23.9/877		1.23/1.22/1.07	0.82/0.77/0.83
			581/0.88	580/0.88	580/0.88	580/0.88		0.93/0.93	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/20	6/0.4/24	8/0.5/29	9/0.6/35	11/0.7/43	1.17/1.21/1.09	0.94/0.91/0.92
	300	0.45	10/0.7/41	13/0.9/50	15/1.0/59	18/1.2/70	21/1.5/83	1.19/1.24/1.10	0.94/0.91/0.92
	350	0.53	16/1.2/65	19/1.5/78	23/1.7/92	27/2.0/108	31/2.4/126	1.23/1.28/1.12	0.94/0.90/0.92
	400	0.60	22/1.9/93	27/2.2/111	31/2.6/130	36/3.0/151	42/3.5/175	1.27/1.33/1.14	0.92/0.88/0.92
	450	0.68	30/2.8/127	36/3.3/151	42/3.8/177	48/4.4/205	56/5.1/236	1.34/1.41/1.20	0.89/0.84/0.90
	500	0.76	40/4.2/176	48/4.9/209	56/5.8/243	65/6.6/281	74/7.6/322	1.50/1.63/1.34	0.84/0.78/0.87
	550	0.83	63/7.4/281	74/8.7/330	85/10.1/383	98/11.5/440	112/13.1/502		0.77/0.71/0.79
	CMBT SPD KIAS/MACH		90/11.8/415	104/13.4/476	118/15.1/539	133/16.9/607	149/18.8/677	1.12/1.09/0.97	0.82/0.79/0.84
			565/0.85	565/0.85	565/0.85	564/0.85	564/0.85	0.93/0.93	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		+20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	11/0.7/43	14/0.8/52	17/1.1/66	23/1.4/89		1.23/1.27/1.15	0.93/0.90/0.92
	300	0.45	21/1.5/83	25/1.7/99	31/2.1/120	39/2.6/152		1.24/1.29/1.15	0.94/0.90/0.92
	350	0.53	31/2.4/126	37/2.8/148	44/3.3/176	54/4.0/215		1.27/1.32/1.16	0.93/0.90/0.92
	400	0.60	42/3.5/175	49/4.1/204	58/4.7/238	69/5.6/285		1.31/1.37/1.18	0.92/0.88/0.91
	450	0.68	56/5.1/236	64/5.8/271	74/6.7/314	88/7.8/370		1.37/1.45/1.23	0.88/0.84/0.90
	500	0.76	74/7.6/322	85/8.6/368	98/9.8/422	114/11.3/490		1.55/1.69/1.39	0.83/0.78/0.86
	550	0.83	112/13.1/502	128/14.9/570	146/16.8/649	168/19.2/745			0.76/0.70/0.79
	CMBT SPD KIAS/MACH		149/18.8/677	166/20.7/752	185/22.9/837	206/25.1/930		1.11/1.07/0.96	0.81/0.78/0.84
			564/0.85	563/0.85	562/0.85	561/0.85		0.92/0.92	1.01/1.01

Figure C8-5. (Sheet 4)

MIL Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (−5°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/18	8/0.6/22	10/0.7/28	12/0.9/34	16/1.1/42	1.07/1.11/1.09	0.96/0.93/0.92
	300	0.54	13/1.0/36	16/1.3/45	20/1.6/55	24/1.9/67	29/2.3/81	1.08/1.12/1.09	0.96/0.93/0.92
	350	0.63	19/1.7/55	24/2.1/69	29/2.5/83	35/3.0/100	42/3.6/120	1.10/1.14/1.09	0.96/0.93/0.92
	400	0.72	26/2.5/76	32/3.0/93	38/3.6/113	45/4.3/134	54/5.1/159	1.12/1.17/1.10	0.96/0.92/0.92
	450	0.80	32/3.3/98	39/4.1/120	47/4.8/144	56/5.7/171	66/6.7/201	1.14/1.20/1.11	0.95/0.91/0.92
	500	0.89	39/4.3/123	47/5.3/151	57/6.3/180	67/7.4/212	78/8.6/248	1.19/1.26/1.13	0.94/0.90/0.91
	550	0.97	54/6.8/183	66/8.3/223	79/9.9/266	93/11.6/313	108/13.5/364		0.84/0.78/0.83
	CMBT SPD KIAS/MACH		66/9.0/233	79/10.7/276	92/12.3/320	106/14.0/366	121/15.8/416	1.13/1.16/1.02	1.04/1.03/1.13
			556/0.98	555/0.98	554/0.98	554/0.98	553/0.98	0.98/0.98	1.03/1.03

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	16/1.1/42	20/1.4/54	26/1.9/71			1.09/1.13/1.10	0.96/0.92/0.92
	300	0.54	29/2.3/81	36/2.8/100	45/3.6/126			1.09/1.13/1.10	0.96/0.93/0.92
	350	0.63	42/3.6/120	50/4.4/144	62/5.3/177			1.11/1.15/1.10	0.96/0.93/0.92
	400	0.72	54/5.1/159	64/6.0/189	78/7.2/228			1.12/1.17/1.11	0.96/0.92/0.92
	450	0.80	66/6.7/201	78/7.9/237	93/9.3/282			1.15/1.21/1.12	0.95/0.91/0.92
	500	0.89	78/8.6/248	92/10.0/290	109/11.6/341			1.19/1.26/1.14	0.94/0.90/0.91
	550	0.97	108/13.5/364	126/15.7/424	148/18.2/495				0.84/0.77/0.82
	CMBT SPD KIAS/MACH		121/15.8/416	138/17.7/470	158/19.9/534			1.14/1.18/1.04	0.99/0.97/1.04
			553/0.98	553/0.98	552/0.98			0.98/0.98	1.02/1.02

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/18	8/0.6/23	10/0.7/28	13/0.9/35	16/1.1/43	1.07/1.11/1.09	0.96/0.93/0.92
	300	0.54	13/1.1/37	17/1.3/46	20/1.6/57	25/2.0/69	30/2.4/84	1.08/1.12/1.09	0.96/0.93/0.92
	350	0.63	20/1.8/57	25/2.2/71	30/2.6/86	36/3.2/104	43/3.8/124	1.10/1.14/1.09	0.96/0.93/0.92
	400	0.72	27/2.6/79	33/3.2/98	40/3.8/118	48/4.5/141	57/5.3/167	1.12/1.17/1.10	0.96/0.92/0.92
	450	0.80	34/3.5/104	42/4.3/128	50/5.2/153	59/6.1/181	70/7.1/213	1.16/1.22/1.12	0.95/0.91/0.91
	500	0.89	42/4.7/134	51/5.7/163	61/6.8/195	72/8.0/230	85/9.3/268	1.22/1.30/1.16	0.93/0.89/0.91
	CMBT SPD KIAS/MACH		65/8.6/225	78/10.2/268	91/11.8/312	105/13.5/358	120/15.2/408	1.15/1.18/1.04	0.97/0.94/1.01
			539/0.95	538/0.95	538/0.95	538/0.95	537/0.95	0.98/0.98	1.02/1.02

Figure C8-6. (Sheet 1)

MIL Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	16/1.1/43	20/1.5/55	27/1.9/74			1.09/1.13/1.10	0.96/0.92/0.92
	300	0.54	30/2.4/84	37/2.9/103	47/3.7/131			1.09/1.14/1.10	0.96/0.93/0.92
	350	0.63	43/3.8/124	53/4.5/150	65/5.6/186			1.11/1.15/1.11	0.96/0.93/0.92
	400	0.72	57/5.3/167	68/6.3/199	82/7.6/241			1.13/1.18/1.11	0.96/0.92/0.92
	450	0.80	70/7.1/213	83/8.4/252	99/9.9/301			1.16/1.22/1.13	0.95/0.91/0.91
	500	0.89	85/9.3/268	99/10.8/314	118/12.7/370			1.22/1.31/1.17	0.93/0.89/0.91
	CMBT SPD KIAS/MACH		120/15.2/408	138/17.2/465	159/19.4/531			1.15/1.19/1.05	0.96/0.94/0.99
			537/0.95	537/0.95	536/0.95			0.98/0.98	1.02/1.02

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/19	9/0.6/23	11/0.8/29	13/0.9/36	16/1.2/45	1.07/1.11/1.09	0.96/0.93/0.92
	300	0.54	14/1.1/38	17/1.4/48	21/1.7/58	25/2.0/71	31/2.5/86	1.08/1.13/1.09	0.96/0.93/0.92
	350	0.63	21/1.8/60	26/2.3/74	31/2.7/90	38/3.3/108	45/3.9/130	1.10/1.15/1.10	0.96/0.93/0.92
	400	0.72	28/2.7/83	35/3.3/103	42/4.0/124	50/4.8/148	60/5.6/176	1.13/1.18/1.11	0.96/0.92/0.92
	450	0.80	36/3.8/111	44/4.6/136	53/5.5/163	63/6.5/193	75/7.7/228	1.17/1.24/1.13	0.94/0.90/0.91
	500	0.89	45/5.2/147	56/6.3/179	66/7.5/214	78/8.9/252	92/10.3/295	1.27/1.37/1.21	0.93/0.88/0.90
	CMBT SPD KIAS/MACH		65/8.3/222	77/9.9/265	91/11.5/309	105/13.2/356	121/15.0/407	1.18/1.23/1.08	0.97/0.94/0.99
			526/0.93	526/0.93	526/0.93	525/0.93	525/0.93	0.98/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB	48,000 LB		+20°C	−20°C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	16/1.2/45	21/1.5/57	28/2.0/77	44/3.1/119		1.10/1.14/1.11	0.96/0.92/0.92
	300	0.54	31/2.5/86	38/3.0/107	49/3.9/137	69/5.3/192		1.10/1.14/1.11	0.96/0.93/0.92
	350	0.63	45/3.9/130	55/4.8/157	68/5.8/195	91/7.6/259		1.12/1.16/1.11	0.96/0.93/0.92
	400	0.72	60/5.6/176	71/6.7/210	87/8.1/255	113/10.2/328		1.14/1.19/1.13	0.96/0.92/0.92
	450	0.80	75/7.7/228	88/9.0/270	106/10.7/323	135/13.1/404		1.18/1.25/1.15	0.95/0.90/0.91
	500	0.89	92/10.3/295	108/12.0/345	129/14.0/407	159/16.9/498		1.28/1.38/1.22	0.93/0.88/0.90
	CMBT SPD KIAS/MACH		121/15.0/407	139/17.0/465	161/19.3/534	194/22.4/631		1.20/1.25/1.11	0.96/0.93/0.98
			525/0.93	525/0.93	524/0.93	523/0.93		0.98/0.98	1.01/1.01

Figure C8-6. (Sheet 2)

MIL Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (−5°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	9/0.6/24	11/0.8/30	13/1.0/37	17/1.2/46	22/1.6/59	1.08/1.12/1.09	0.96/0.92/0.92
	300	0.54	18/1.4/49	22/1.7/60	26/2.1/73	32/2.6/90	40/3.2/111	1.09/1.13/1.10	0.96/0.93/0.92
	350	0.63	27/2.4/77	32/2.9/93	39/3.4/112	47/4.1/135	57/5.0/164	1.11/1.16/1.10	0.96/0.93/0.92
	400	0.72	36/3.5/108	44/4.2/131	53/5.0/156	63/6.0/186	75/7.1/223	1.14/1.19/1.12	0.95/0.92/0.92
	450	0.80	47/5.0/146	57/6.0/176	68/7.1/208	80/8.3/246	95/9.8/291	1.20/1.27/1.16	0.94/0.90/0.91
	500	0.89	62/7.2/201	74/8.5/239	87/10.0/282	102/11.7/330	120/13.6/386	1.42/1.56/1.35	0.91/0.87/0.89
	CMBT SPD KIAS/MACH		80/10.1/271	94/11.8/318	109/13.5/367	126/15.4/421	145/17.6/483	1.28/1.35/1.18	0.95/0.92/0.96
			516/0.92	516/0.92	516/0.92	516/0.91	516/0.91	0.98/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		+20°C	−20°C
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	22/1.6/59	30/2.1/81	47/3.3/128	49/3.6/134		1.11/1.15/1.12	0.96/0.92/0.92
	300	0.54	40/3.2/111	52/4.0/143	74/5.7/204	82/6.5/229		1.11/1.15/1.12	0.96/0.93/0.92
	350	0.63	57/5.0/164	72/6.2/205	98/8.1/276	110/9.4/314		1.13/1.17/1.13	0.96/0.93/0.92
	400	0.72	75/7.1/223	93/8.6/272	121/11.0/353	137/12.6/401		1.16/1.21/1.14	0.95/0.92/0.91
	450	0.80	95/9.8/291	115/11.6/349	146/14.4/441	166/16.5/501		1.21/1.28/1.18	0.94/0.90/0.91
	500	0.89	120/13.6/386	143/15.9/457	178/19.2/561	202/21.9/637		1.43/1.59/1.38	0.92/0.87/0.89
	CMBT SPD KIAS/MACH		145/17.6/483	169/20.1/559	206/23.5/667	230/26.5/748		1.28/1.36/1.19	0.95/0.91/0.94
			516/0.91	515/0.91	515/0.91	514/0.91		0.97/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	9/0.6/24	11/0.8/30	14/1.0/38	17/1.3/47	23/1.6/61	1.08/1.12/1.10	0.96/0.92/0.92
	300	0.54	18/1.5/51	22/1.8/62	27/2.2/76	33/2.7/93	42/3.3/116	1.09/1.13/1.10	0.96/0.93/0.92
	350	0.63	28/2.5/80	34/3.0/97	41/3.6/117	49/4.3/142	60/5.2/173	1.11/1.16/1.11	0.96/0.93/0.92
	400	0.72	39/3.7/115	47/4.5/138	56/5.4/166	67/6.4/198	80/7.6/237	1.15/1.21/1.13	0.95/0.91/0.91
	450	0.80	51/5.4/159	62/6.5/191	73/7.7/226	87/9.1/267	103/10.7/317	1.23/1.31/1.19	0.94/0.90/0.91
	500	0.89	71/8.5/234	85/10.1/279	100/11.8/329	118/13.8/385	139/16.0/451		0.89/0.84/0.87
	CMBT SPD KIAS/MACH		87/11.0/297	103/12.9/348	119/14.9/403	138/17.0/465	160/19.5/536	1.30/1.36/1.19	0.91/0.87/0.91
			509/0.90	509/0.90	509/0.90	509/0.90	508/0.90	0.97/0.97	1.01/1.01

Figure C8-6. (Sheet 3)

MIL Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		+20°C	−20°C
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	23/1.6/61	31/2.2/85	51/3.6/139	49/3.6/133		1.11/1.15/1.13	0.96/0.92/0.92
	300	0.54	42/3.3/116	54/4.2/150	79/6.1/219	85/6.7/235		1.11/1.16/1.12	0.96/0.93/0.92
	350	0.63	60/5.2/173	76/6.5/217	105/8.7/297	115/9.9/327		1.13/1.18/1.13	0.96/0.93/0.92
	400	0.72	80/7.6/237	99/9.2/291	131/11.9/382	145/13.5/425		1.17/1.23/1.15	0.95/0.91/0.91
	450	0.80	103/10.7/317	125/12.8/382	161/15.9/487	179/18.1/545		1.25/1.33/1.22	0.94/0.90/0.91
	500	0.89	139/16.0/451	165/18.8/534	206/22.8/658	232/26.0/742			0.89/0.84/0.87
	CMBT SPD KIAS/MACH		160/19.5/536	188/22.5/623	231/26.6/752	257/30.1/842		1.26/1.32/1.17	0.91/0.86/0.90
			508/0.90	508/0.90	508/0.90	507/0.90		0.96/0.96	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	9/0.7/25	11/0.8/31	14/1.0/39	18/1.3/49	23/1.7/64	1.08/1.12/1.10	0.96/0.92/0.92
	300	0.54	19/1.5/52	23/1.8/64	28/2.2/78	35/2.8/96	43/3.4/121	1.09/1.14/1.10	0.96/0.93/0.92
	350	0.63	29/2.6/84	35/3.1/102	43/3.8/123	52/4.5/149	63/5.5/182	1.12/1.17/1.11	0.96/0.93/0.92
	400	0.72	41/4.0/122	49/4.8/147	59/5.8/177	71/6.9/211	86/8.2/254	1.17/1.23/1.15	0.95/0.91/0.91
	450	0.80	56/6.0/175	67/7.2/210	80/8.6/249	95/10.1/295	114/11.9/351	1.29/1.39/1.25	0.93/0.89/0.90
	500	0.89	95/12.0/324						
	CMBT SPD KIAS/MACH		96/12.1/326	113/14.1/382	131/16.3/442	152/18.7/510	176/21.4/588	1.23/1.27/1.13	0.93/0.90/0.93
			500/0.89	500/0.89	500/0.89	499/0.89	499/0.89	0.95/0.95	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		+20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	23/1.7/64	33/2.3/89	54/3.8/148	49/3.6/133		1.10/1.14/1.12	0.96/0.92/0.92
	300	0.54	43/3.4/121	57/4.5/158	84/6.5/233	87/7.0/243		1.11/1.15/1.12	0.96/0.93/0.92
	350	0.63	63/5.5/182	80/6.9/230	112/9.3/317	120/10.4/343		1.14/1.18/1.13	0.96/0.93/0.92
	400	0.72	86/8.2/254	106/10.0/313	142/12.9/414	155/14.5/455		1.18/1.24/1.16	0.95/0.91/0.91
	450	0.80	114/11.9/351	138/14.3/425	179/17.9/542	197/20.3/604		1.32/1.42/1.28	0.93/0.89/0.90
	CMBT SPD KIAS/MACH		176/21.4/588	207/24.7/685	254/29.4/830	282/33.0/924		1.20/1.23/1.10	0.93/0.89/0.93
			499/0.89	498/0.89	498/0.88	497/0.88		0.95/0.95	1.01/1.01

Figure C8-6. (Sheet 4)

MIL Accelerations — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.0/22	16/1.3/29	20/1.7/38	27/2.2/50	37/3.1/70	1.04/1.08/1.09	0.97/0.93/0.90
	300	0.65	23/2.2/46	30/2.7/58	38/3.5/74	48/4.4/94	64/5.8/124	1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	34/3.4/70	43/4.3/88	53/5.4/110	67/6.7/138	86/8.5/176	1.06/1.11/1.10	0.97/0.93/0.91
	400	0.85	44/4.8/96	55/6.0/120	68/7.4/149	85/9.1/183	107/11.3/229	1.08/1.13/1.10	0.97/0.93/0.91
	450	0.95	56/6.7/131	70/8.3/163	86/10.2/199	106/12.3/242	131/15.1/298	1.14/1.21/1.14	0.96/0.92/0.91
	CMBT SPD KIAS/MACH		85/11.6/218	103/13.8/259	122/16.1/304	144/18.7/355	171/21.8/416	1.06/1.09/1.02	0.99/0.96/0.96
			475/1.00	474/1.00	473/1.00	472/0.99	471/0.99	0.98/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0*			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	37/3.1/70	61/5.0/113	64/5.5/121			1.04/1.08/1.09	0.98/0.94/0.91
	300	0.65	64/5.8/124	94/8.4/181	108/9.9/210			1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	86/8.5/176	121/11.6/243	140/13.7/283			1.06/1.11/1.10	0.97/0.93/0.91
	400	0.85	107/11.3/229	145/14.9/304	167/17.5/354			1.08/1.13/1.11	0.97/0.93/0.91
	450	0.95	131/15.1/298	173/19.2/384	199/22.5/446			1.13/1.21/1.15	0.97/0.92/0.91
	CMBT SPD KIAS/MACH		171/21.8/416	214/26.1/506	241/29.5/569			1.06/1.09/1.03	0.97/0.94/0.93
			471/0.99	469/0.99	467/098			0.98/0.98	1.01/1.00

***BASED ON 214 KIAS/0.47 MACH.**

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.0/23	16/1.4/30	21/1.8/39	28/2.4/52	40/3.3/74	1.04/1.08/1.09	0.97/0.93/0.90
	300	0.65	24/2.3/48	31/2.9/61	40/3.7/77	51/4.7/99	68/6.2/132	1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	36/3.6/74	45/4.6/93	57/5.7/117	72/7.1/147	93/9.2/189	1.06/1.11/1.10	0.97/0.93/0.91
	400	0.85	47/5.2/104	59/6.5/130	73/8.0/160	91/9.9/198	116/12.3/249	1.08/1.14/1.11	0.97/0.93/0.91
	450	0.95	65/7.9/153	81/9.8/191	99/12.0/234	122/14.6/285	152/18.0/352		0.96/0.91/0.90
	CMBT SPD KIAS/MACH		82/10.8/205	100/13.0/246	119/15.3/291	142/17.9/342	171/21.0/406	1.09/1.13/1.06	0.97/0.93/0.93
			459/0.97	458/0.97	457/0.97	456/0.96	455/0.96	0.98/0.99	1.00/1.00

Figure C8-7. (Sheet 1)

MIL Accelerations — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0*			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	40/3.3/74	67/5.6/125	65/5.6/122			1.04/1.08/1.09	0.98/0.94/0.91
	300	0.65	68/6.2/132	103/9.2/199	112/10.4/219			1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	93/9.2/189	133/12.7/266	147/14.6/300			1.06/1.11/1.11	0.97/0.93/0.91
	400	0.85	116/12.3/249	160/16.4/336	179/18.9/382			1.08/1.14/1.11	0.97/0.93/0.91
	450	0.95	152/18.0/352	203/23.2/460	232/27.2/532				0.96/0.91/0.90
	CMBT SPD KIAS/MACH		171/21.0/406	219/25.8/506	243/29.0/564			1.09/1.13/1.07	0.97/0.94/0.92
			455/0.96	454/0.96	452/0.96			0.98/0.99	1.00/1.00

*BASED ON 217 KIAS/0.48 MACH.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX =100	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	13/1.1/24	17/1.4/31	22/1.9/41	30/2.5/55	42/3.5/79	1.04/1.08/1.09	0.97/0.93/0.90
	300	0.65	25/2.4/50	33/3.0/64	42/3.9/81	54/5.0/105	73/6.6/142	1.05/1.09/1.10	0.97/0.93/0.91
	350	0.75	38/3.9/79	48/4.9/100	60/6.1/125	77/7.7/157	100/9.9/204	1.07/1.11/1.11	0.97/0.93/0.91
	400	0.85	51/5.6/112	64/7.1/141	80/8.7/174	99/10.8/216	127/13.6/273	1.09/1.15/1.12	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		82/10.6/202	100/12.7/244	120/15.1/290	144/17.7/343	175/21.1/412	1.08/1.12/1.06	0.97/0.94/0.92
			447/0.95	446/0.94	445/0.94	445/0.94	444/0.94	0.98/0.99	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB	48,000 LB		+20°C	−20°C
DRAG INDEX = 100	200	0.44	0/0/0	0/0/0	0/0/0*	0/0/0**		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	42/3.5/79	75/6.1/138	64/5.5/121	37/3.3/71		1.04/1.08/1.09	0.97/0.93/0.91
	300	0.65	73/6.6/142	114/10.1/218	116/10.8/228	113/11.1/227		1.05/1.10/1.10	0.97/0.93/0.91
	350	0.75	100/9.9/204	146/14.0/293	156/15.6/320	163/17.0/342		1.07/1.11/1.11	0.97/0.93/0.91
	400	0.85	127/13.6/273	177/18.3/374	193/20.7/415	207/23.0/455		1.09/1.15/1.12	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		175/21.1/412	230/26.5/524	249/29.4/576	267/32.3/627		1.09/1.13/1.07	0.98/0.94/0.92
			444/0.94	442/0.94	441/0.93	439/0.93		0.98/0.99	1.00/1.00

*BASED ON 219 KIAS/0.48 MACH.
**BASED ON 238 KIAS/0.52 MACH.

Figure C8-7. (Sheet 2)

MIL Accelerations — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX =150	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	18/1.5/33	23/1.9/43	31/2.6/58	45/3.8/84	75/6.3/140	1.04/1.08/1.09	0.97/0.93/0.91
	300	0.65	34/3.2/67	44/4.1/86	57/5.3/112	78/7.2/152	118/10.6/228	1.05/1.10/1.10	0.97/0.93/0.91
	350	0.75	51/5.2/107	65/6.6/134	82/8.3/170	109/10.8/222	155/15.0/313	1.07/1.12/1.11	0.97/0.93/0.91
	400	0.85	70/7.8/155	87/9.6/192	109/11.9/239	140/15.1/304	192/20.1/410	1.11/1.16/1.13	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		102/12.8/247	123/15.2/295	149/18.1/353	185/21.9/430	241/27.5/546	1.10/1.15/1.09	0.97/0.93/0.92
			437/0.93	437/0.93	436/0.92	435/0.92	434/0.92	0.99/0.99	1.00/1.00

*BASED ON 202 KIAS/0.45 MACH.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX =200	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	18/1.5/34	24/2.0/45	33/2.8/61	49/4.1/91	77/6.4/143	1.04/1.08/1.09	0.97/0.93/0.91
	300	0.65	36/3.4/71	47/4.3/91	61/5.6/119	85/7.7/165	124/11.2/240	1.05/1.10/1.10	0.97/0.93/0.91
	350	0.75	55/5.7/115	70/7.1/145	89/9.0/185	119/11.9/244	166/16.3/337	1.07/1.12/1.11	0.97/0.93/0.91
	400	0.85	77/8.7/172	97/10.8/214	122/13.5/268	158/17.2/344	213/22.7/458	1.13/1.19/1.15	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		108/13.4/260	131/16.1/313	160/19.3/378	201/23.8/467	261/30.0/595	1.18/1.24/1.17	0.97/0.93/0.92
			430/0.91	430/0.91	429/0.91	428/0.91	427/0.91	0.99/0.99	1.00/1.00

*BASED ON 205 KIAS/0.45 MACH.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 250	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	19/1.6/36	25/2.1/47	35/2.9/65	53/4.4/98	78/6.6/146	1.04/1.08/1.09	0.97/0.93/0.91
	300	0.65	38/3.6/75	50/4.6/97	66/6.1/128	92/8.4/179	131/11.9/254	1.06/1.10/1.11	0.97/0.93/0.91
	350	0.75	60/6.2/125	76/7.8/158	98/9.9/203	132/13.2/271	180/17.9/368	1.08/1.13/1.12	0.97/0.93/0.91
	400	0.85	87/9.9/196	109/12.4/245	139/15.6/309	182/20.1/401	242/26.3/528	1.16/1.24/1.19	0.97/0.93/0.92
	CMBT SPD KIAS/MACH		123/15.3/296	150/18.5/360	185/22.6/440	234/27.9/547	296/34.5/681	1.12/1.16/1.10	0.97/0.93/0.91
			424/0.90	424/0.90	424/0.90	423/0.90	420/0.89	0.98/0.98	1.00/1.00

*BASED ON 207 KIAS/0.46 MACH.

Figure C8-7. (Sheet 3)

MIL Accelerations — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 0	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	23/2.3/30	32/3.2/42	47/4.6/61	78/7.6/101	97/9.7/128	1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	43/4.7/61	58/6.3/81	81/8.6/112	122/12.9/168	159/17.1/220	1.06/1.11/1.11	0.97/0.93/0.90
	350	0.91	63/7.4/94	83/9.8/123	112/12.9/163	161/18.2/232	207/23.8/301	1.07/1.12/1.11	0.97/0.92/0.90
	CMBT SPD KIAS/MACH		111/15.1/186	137/18.3/226	171/22.3/275	224/28.1/350	273/34.0/423	1.05/1.09/1.08	0.96/0.91/0.89
			390/1.00	388/1.00	385/0.99	382/0.98	379/0.98	0.99/0.99	1.00/1.00

*BASED ON 213 KIAS/0.58 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 50	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	25/2.4/32	35/3.4/45	51/5.0/67	88/8.6/115	95/9.6/126	1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	47/5.1/65	64/6.9/88	89/9.5/123	139/14.7/191	168/18.3/234	1.06/1.11/1.11	0.97/0.93/0.90
	350	0.91	70/8.3/104	93/10.9/137	126/14.7/185	186/21.1/269	228/26.7/335	1.07/1.12/1.11	0.97/0.92/0.90
	CMBT SPD KIAS/MACH		108/14.2/174	135/17.4/215	171/21.7/269	235/28.6/358	278/34.3/426	1.06/1.10/1.09	0.96/0.91/0.89
			375/0.97	374/0.96	372/0.96	369/0.95	366/0.95	1.00/1.00	1.00/1.00

*BASED ON 218 KIAS/0.59 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 100	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	26/2.6/35	37/3.7/49	56/5.5/73	103/10.0/134	91/9.3/122	1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	51/5.5/71	70/7.5/97	99/10.6/137	162/17.0/221	178/19.7/252	1.07/1.12/1.11	0.97/0.93/0.90
	350	0.91	79/9.4/118	105/12.5/157	145/17.0/214	221/25.3/321	259/31.1/388	1.08/1.13/1.12	0.97/0.93/0.90
	CMBT SPD KIAS/MACH		109/14.0/172	138/17.4/215	178/22.0/273	253/30.1/378	287/35.2/437	1.06/1.11/1.10	0.96/0.91/0.89
			365/0.94	363/0.94	361/0.94	359/0.93	356/0.92	1.00/1.00	1.00/1.00

*BASED ON 223 KIAS/0.60 MACH.

Figure C8-8. (Sheet 1)

MIL Accelerations — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 150	200	0.54	0/0/0	0/0/0	0/0/0*	0/0/0**	0/0/0***	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	40/4.0/53	62/6.1/81	119/11.6/155	83/8.6/112		1.04/1.08/1.10	0.97/0.93/0.90
	300	0.79	77/8.4/108	112/12.0/155	188/19.9/258	193/21.7/275	160/19.3/240	1.07/1.12/1.12	0.97/0.93/0.90
	350	0.91	124/15.0/187	174/20.8/260	274/31.9/402			1.09/1.14/1.13	0.97/0.93/0.91
	CMBT SPD KIAS/MACH		144/17.9/222	191/23.3/290	285/33.5/421	316/39.0/483	323/42.0/513	1.07/1.12/1.11	0.96/0.92/0.90
			356/0.92	354/0.92	352/0.91	349/0.91	343/0.89	1.00/1.00	1.00/1.00

*** BASED ON 201 KIAS/0.54 MACH.**
**** BASED ON 229 KIAS/0.61 MACH.**
***** BASED ON 261 KIAS/0.70 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 200	200	0.54	0/0/0	0/0/0	0/0/0*	0/0/0**	0/0/0***	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	44/4.4/58	70/6.9/92	121/12.0/159	59/6.3/81		1.04/1.08/1.10	0.98/0.93/0.90
	300	0.79	86/9.4/121	128/13.8/178	206/22.1/286	207/23.9/301	99/12.4/154	1.08/1.13/1.13	0.98/0.93/0.91
	CMBT SPD KIAS/MACH		160/19.8/245	220/26.8/333	329/39.3/491	343/42.7/528	220/28.6/353	1.09/1.14/1.13	0.97/0.92/0.90
			350/0.91	348/0.90	346/0.90	338/0.88	321/0.84	1.00/1.00	1.00/1.00

*** BASED ON 205 KIAS/0.56 MACH.**
**** BASED ON 237 KIAS/0.64 MACH.**
***** BASED ON 283 KIAS/0.75 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.54	0/0/0	0/0/0	0/0/0*	0/0/0**		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	49/4.8/64	80/7.9/104	123/12.3/162			1.04/1.08/1.10	0.98/0.93/0.91
	300	0.79	99/10.8/139	151/16.3/210	233/25.5/327	8/0.9/11		1.09/1.14/1.14	0.98/0.94/0.91
	CMBT SPD KIAS/MACH		186/23.0/285	253/30.5/381	344/40.6/510	335/41.2/513		1.10/1.14/1.13	0.95/0.91/0.89
			343/0.89	339/0.88	332/0.87	320/0.84		1.00/1.00	1.00/1.00

*** BASED ON 211 KIAS/0.57 MACH.**
**** BASED ON 249 KIAS/0.66 MACH.**

Figure C8-8. (Sheet 2)

MAX AB Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/35	3/0.2/42	3/0.2/50	4/0.2/59	4/0.3/68	1.13/1.17/1.08	0.92/0.88/0.94
	300	0.45	4/0.3/69	5/0.4/84	6/0.4/99	7/0.5/116	8/0.6/133	1.13/1.17/1.07	0.92/0.89/0.94
	350	0.53	6/0.5/104	8/0.6/126	9/0.7/149	10/0.8/173	12/0.9/198	1.13/1.17/1.08	0.92/0.89/0.94
	400	0.60	8/0.7/139	10/0.8/169	12/1.0/199	14/1.1/230	16/1.3/263	1.14/1.19/1.08	0.92/0.89/0.94
	450	0.68	10/0.9/175	12/1.1/212	15/1.3/250	17/1.5/289	19/1.7/329	1.16/1.20/1.09	0.92/0.88/0.94
	500	0.76	12/1.2/212	15/1.4/257	17/1.7/302	20/1.9/348	23/2.2/397	1.17/1.22/1.10	0.91/0.88/0.94
	550	0.83	14/1.4/251	17/1.7/303	20/2.1/357	23/2.4/411	26/2.7/467	1.18/1.23/1.11	0.92/0.88/0.94
	600	0.91	16/1.8/294	19/2.1/355	23/2.5/417	26/2.9/480	30/3.3/545	1.19/1.25/1.12	0.92/0.89/0.94
	650	0.98	19/2.2/352	23/2.7/424	26/3.1/498	30/3.6/573	35/4.1/650	1.21/1.27/1.13	0.92/0.89/0.94
	700	1.06	23/3.0/456	28/3.6/550	32/4.3/645	37/4.9/741	42/5.6/840	1.27/1.36/1.21	0.91/0.88/0.92
	750	1.13	30/4.5/638	36/5.4/768	43/6.3/900	49/7.2/1034	56/8.2/1173	1.52/1.70/1.50	0.90/0.86/0.90
	LIMIT SPD KIAS/MACH		55/9.9/1292	66/11.9/1550	77/13.9/1814	89/15.9/2083	101/18.1/2368	1.34/1.38/1.27	0.76/0.70/0.74
			800/1.21	800/1.21	800/1.21	800/1.21	800/1.21	0.96/0.96	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 0	200	0.30	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.3/68	5/0.3/78	6/0.4/90			1.14/1.18/1.09	0.91/0.88/0.93
	300	0.45	8/0.6/133	9/0.6/152	11/0.7/173			1.14/1.18/1.08	0.91/0.88/0.94
	350	0.53	12/0.9/198	14/1.0/225	15/1.2/254			1.14/1.18/1.08	0.92/0.88/0.94
	400	0.60	16/1.3/263	18/1.5/298	20/1.6/335			1.15/1.19/1.09	0.92/0.88/0.94
	450	0.68	19/1.7/329	22/1.9/372	24/2.2/417			1.16/1.21/1.09	0.91/0.88/0.94
	500	0.76	23/2.2/397	26/2.4/447	29/2.7/500			1.17/1.22/1.10	0.91/0.88/0.94
	550	0.83	26/2.7/467	30/3.0/526	33/3.4/587			1.18/1.24/1.11	0.91/0.88/0.94
	600	0.91	30/3.3/545	34/3.7/612	37/4.1/682			1.19/1.25/1.12	0.92/0.88/0.94
	650	0.98	35/4.1/650	39/4.6/729	43/5.1/811			1.21/1.27/1.14	0.92/0.88/0.94
	700	1.06	42/5.6/840	48/6.2/941	53/6.9/1046			1.28/1.37/1.22	0.91/0.88/0.92
	750	1.13	56/8.2/1173	62/9.2/1315	69/10.2/1463			1.54/1.73/1.52	0.90/0.86/0.90
	CMBT SPD KIAS/MACH		101/18.1/2368	115/20.6/2694	130/23.5/3066			1.24/1.26/1.17	0.75/0.69/0.73
			800/1.21	800/1.21	800/1.21			0.96/0.96	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/35	3/0.2/43	3/0.2/51	4/0.2/59	4/0.3/69	1.13/1.17/1.08	0.92/0.88/0.94
	300	0.45	4/0.3/70	5/0.4/85	6/0.4/100	7/0.5/117	8/0.6/135	1.13/1.17/1.08	0.92/0.89/0.94
	350	0.53	6/0.5/105	8/0.6/128	9/0.7/151	11/0.8/175	12/0.9/201	1.13/1.17/1.08	0.92/0.89/0.94
	400	0.60	8/0.7/141	10/0.8/171	12/1.0/202	14/1.2/234	16/1.3/267	1.15/1.19/1.08	0.92/0.89/0.94
	450	0.68	10/0.9/179	13/1.1/216	15/1.3/254	17/1.5/294	20/1.7/335	1.16/1.21/1.09	0.92/0.88/0.94
	500	0.76	12/1.2/217	15/1.4/262	18/1.7/309	20/2.0/356	23/2.2/406	1.17/1.22/1.10	0.91/0.88/0.94
	550	0.83	14/1.5/259	17/1.8/312	21/2.1/367	24/2.4/423	27/2.8/480	1.19/1.24/1.12	0.92/0.88/0.94
	600	0.91	17/1.8/305	20/2.2/368	24/2.6/432	27/3.0/498	31/3.4/565	1.20/1.26/1.13	0.92/0.88/0.94
	650	0.98	20/2.4/378	24/2.9/455	28/3.4/534	32/3.9/614	37/4.4/696	1.23/1.31/1.16	0.91/0.88/0.93
	700	1.06	31/4.4/640	37/5.4/772	43/6.3/906	50/7.2/1043	57/8.2/1184		0.87/0.82/0.86
	CMBT SPD KIAS/MACH		68/11.9/1581	80/13.9/1848	92/16.0/2126	105/18.2/2428	116/20.0/2667	0.72/0.66/0.63	0.90/0.87/0.90
			728/1.10	728/1.10	728/1.10	728/1.10	727/1.10	0.94/0.94	1.01/1.01

Figure C8-9. (Sheet 1)

MAX AB Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (15°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 50	200	0.30	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.3/69	5/0.3/79	6/0.4/91			1.14/1.18/1.09	0.91/0.88/0.93
	300	0.45	8/0.6/135	9/0.7/154	11/0.7/175			1.14/1.18/1.08	0.91/0.88/0.93
	350	0.53	12/0.9/201	14/1.0/228	16/1.2/257			1.14/1.18/1.08	0.92/0.88/0.94
	400	0.60	16/1.3/267	18/1.5/303	20/1.7/340			1.15/1.19/1.09	0.92/0.88/0.94
	450	0.68	20/1.7/335	22/2.0/379	25/2.2/425			1.16/1.21/1.10	0.91/0.88/0.94
	500	0.76	23/2.2/406	26/2.5/457	29/2.8/512			1.18/1.23/1.11	0.91/0.88/0.94
	550	0.83	27/2.8/480	30/3.1/541	34/3.5/603			1.19/1.24/1.12	0.91/0.88/0.94
	600	0.91	31/3.4/565	35/3.8/634	39/4.2/707			1.20/1.26/1.13	0.91/0.88/0.94
	650	0.98	37/4.4/696	41/4.9/781	46/5.5/868			1.24/1.31/1.17	0.91/0.88/0.93
	700	1.06	57/8.2/1184	64/9.2/1331	71/10.3/1483				0.86/0.82/0.86
	LIMIT SPD KIAS/MACH		116/20.0/2667	126/21.6/2886	135/23.0/3088			0.73/0.66/0.64	0.91/0.89/0.91
			727/1.10	726/1.10	724/1.10			0.94/0.94	1.02/1.02

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	2/0.1/35	3/0.2/43	3/0.2/51	4/0.2/60	4/0.3/69	1.13/1.17/1.08	0.92/0.88/0.94
	300	0.45	4/0.3/71	5/0.4/86	6/0.4/102	7/0.5/118	8/0.6/136	1.13/1.17/1.08	0.92/0.88/0.94
	350	0.53	6/0.5/107	8/0.6/129	9/0.7/153	11/0.8/177	12/0.9/203	1.14/1.18/1.08	0.92/0.89/0.94
	400	0.60	9/0.7/144	10/0.9/174	12/1.0/205	14/1.2/237	16/1.3/271	1.15/1.19/1.08	0.92/0.88/0.94
	450	0.68	11/1.0/182	13/1.2/220	15/1.4/259	18/1.6/300	20/1.8/342	1.16/1.21/1.10	0.91/0.88/0.94
	500	0.76	13/1.2/223	15/1.5/269	18/1.7/316	21/2.0/365	24/2.3/415	1.18/1.23/1.11	0.91/0.88/0.94
	550	0.83	15/1.5/266	18/1.9/321	21/2.2/377	24/2.5/435	28/2.9/494	1.19/1.25/1.12	0.91/0.88/0.94
	600	0.91	17/1.9/317	21/2.3/383	24/2.7/449	28/3.1/517	32/3.5/587	1.21/1.27/1.14	0.91/0.88/0.94
	650	0.98	22/2.7/419	26/3.3/504	31/3.8/591	35/4.4/679	40/5.0/769	1.34/1.46/1.28	0.91/0.87/0.92
	CMBT SPD KIAS/MACH		38/5.7/800	44/6.6/934	51/7.5/1067	57/8.4/1199	64/9.3/1328	1.01/0.99/0.92	0.95/0.93/0.96
			671/1.01	670/1.01	670/1.01	670/1.01	670/1.01	0.98/0.98	1.01/1.01

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB	48,000 LB		+20°C	−20°C
DRAG INDEX =100	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	4/0.3/69	5/0.3/80	6/0.4/92	7/0.4/105		1.14/1.18/1.09	0.91/0.88/0.93
	300	0.45	8/0.6/136	10/0.7/155	11/0.8/177	12/0.9/200		1.14/1.18/1.09	0.91/0.88/0.93
	350	0.53	12/0.9/203	14/1.1/231	16/1.2/261	18/1.3/294		1.15/1.18/1.09	0.91/0.88/0.94
	400	0.60	16/1.3/271	18/1.5/307	21/1.7/346	23/1.9/387		1.16/1.20/1.09	0.91/0.88/0.94
	450	0.68	20/1.8/342	23/2.0/386	25/2.3/433	28/2.5/483		1.17/1.22/1.10	0.91/0.88/0.94
	500	0.76	24/2.3/415	27/2.6/468	30/2.9/524	33/3.2/583		1.18/1.24/1.11	0.91/0.88/0.94
	550	0.83	28/2.9/494	31/3.2/556	35/3.6/621	39/3.9/689		1.20/1.25/1.13	0.91/0.88/0.94
	600	0.91	32/3.5/587	36/4.0/659	40/4.4/734	44/4.9/813		1.21/1.28/1.14	0.91/0.88/0.94
	650	0.98	40/5.0/769	45/5.5/862	50/6.2/959	55/6.8/1059		1.34/1.46/1.28	0.91/0.87/0.92
	LIMIT SPD KIAS/MACH		64/9.3/1328	70/10.2/1456	76/11.0/1584	83/11.9/1712		1.03/1.02/0.94	0.95/0.93/0.96
			670/1.01	669/1.01	669/1.01	669/1.01		0.98/0.98	1.01/1.01

Figure C8-9. (Sheet 2)

MAX AB Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/43	3/0.2/51	4/0.2/60	4/0.3/70	5/0.3/80	1.13/1.17/1.08	0.91/0.88/0.94
	300	0.45	5/0.4/87	6/0.4/103	7/0.5/119	8/0.6/138	10/0.7/157	1.13/1.17/1.08	0.92/0.88/0.94
	350	0.53	8/0.6/131	9/0.7/155	11/0.8/180	12/0.9/206	14/1.1/234	1.14/1.18/1.08	0.92/0.88/0.94
	400	0.60	11/0.9/177	12/1.0/208	14/1.2/241	16/1.4/276	19/1.5/312	1.15/1.20/1.09	0.92/0.88/0.94
	450	0.68	13/1.2/225	15/1.4/264	18/1.6/306	20/1.8/349	23/2.1/394	1.17/1.22/1.10	0.91/0.88/0.94
	500	0.76	16/1.5/275	19/1.8/324	21/2.1/374	24/2.3/426	27/2.6/480	1.18/1.24/1.12	0.91/0.88/0.94
	550	0.83	18/1.9/331	22/2.3/389	25/2.6/448	28/3.0/510	32/3.3/573	1.20/1.26/1.13	0.91/0.88/0.94
	600	0.91	22/2.4/399	25/2.9/468	29/3.3/539	33/3.7/611	37/4.2/687	1.23/1.29/1.15	0.91/0.88/0.94
	650	0.98	34/4.5/670	39/5.3/783	45/6.1/899	51/6.9/1018	57/7.7/1142		0.84/0.79/0.84
	CMBT SPD KIAS/MACH		38/5.3/766	43/6.1/881	49/6.8/996	55/7.6/1111	61/8.3/1227	1.15/1.17/1.06	0.93/0.90/0.94
			651/0.98	651/0.98	651/0.98	651/0.98	651/0.98	0.98/0.98	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		+20°C	−20°C
DRAG INDEX = 150	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/80	6/0.4/92	7/0.4/106	8/0.5/122		1.15/1.19/1.10	0.91/0.87/0.93
	300	0.45	10/0.7/157	11/0.8/179	13/0.9/203	14/1.0/230		1.15/1.19/1.09	0.91/0.88/0.93
	350	0.53	14/1.1/234	16/1.2/264	18/1.4/298	20/1.5/335		1.15/1.19/1.09	0.91/0.88/0.93
	400	0.60	19/1.5/312	21/1.7/351	24/1.9/394	26/2.2/441		1.16/1.20/1.10	0.91/0.88/0.93
	450	0.68	23/2.1/394	26/2.3/442	29/2.6/493	32/2.8/549		1.18/1.22/1.11	0.91/0.88/0.94
	500	0.76	27/2.6/480	31/2.9/537	34/3.3/597	38/3.6/663		1.19/1.24/1.12	0.91/0.87/0.94
	550	0.83	32/3.3/573	36/3.7/640	40/4.1/710	44/4.5/786		1.21/1.27/1.14	0.91/0.88/0.94
	600	0.91	37/4.2/687	42/4.6/765	46/5.1/847	51/5.6/934		1.23/1.29/1.16	0.91/0.88/0.93
	650	0.98	57/7.7/1142	64/8.6/1273	71/9.5/1416	79/10.6/1573			0.84/0.78/0.83
	CMBT SPD KIAS/MACH		61/8.3/1227	67/9.1/1344	73/9.9/1466	80/10.7/1590		1.16/1.18/1.07	0.92/0.90/0.94
			651/0.98	651/0.98	650/0.98	650/0.98		0.98/0.98	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/44	3/0.2/52	4/0.2/61	4/0.3/70	5/0.3/81	1.13/1.17/1.08	0.91/0.88/0.94
	300	0.45	5/0.4/87	6/0.4/104	7/0.5/121	9/0.6/139	10/0.7/159	1.14/1.18/1.08	0.91/0.88/0.94
	350	0.53	8/0.6/133	10/0.7/157	11/0.8/182	13/1.0/209	14/1.1/237	1.14/1.18/1.08	0.92/0.88/0.94
	400	0.60	11/0.9/180	13/1.0/212	15/1.2/245	17/1.4/280	19/1.6/318	1.15/1.20/1.09	0.92/0.88/0.94
	450	0.68	13/1.2/229	16/1.4/270	18/1.6/312	21/1.9/356	23/2.1/402	1.17/1.22/1.10	0.91/0.88/0.94
	500	0.76	16/1.6/283	19/1.8/332	22/2.1/384	25/2.4/437	28/2.7/492	1.19/1.25/1.12	0.91/0.87/0.94
	550	0.83	19/2.0/342	22/2.3/402	26/2.7/463	29/3.1/526	33/3.4/592	1.21/1.27/1.14	0.91/0.88/0.94
	600	0.91	23/2.6/418	27/3.0/490	31/3.5/564	35/3.9/640	39/4.4/718	1.24/1.31/1.17	0.91/0.88/0.93
	CMBT SPD KIAS/MACH		37/5.0/737	42/5.8/849	48/6.5/960	54/7.3/1072	60/8.0/1185	1.18/1.21/1.10	0.92/0.90/0.94
			639/0.97	639/0.97	639/0.97	639/0.97	639/0.97	0.98/0.98	1.00/1.00

Figure C8-9. (Sheet 3)

MAX AB Accelerations — Sea Level

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (15°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/81	6/0.4/93	7/0.4/107	8/0.5/124		1.15/1.19/1.10	0.91/0.87/0.93
	300	0.45	10/0.7/159	11/0.8/181	13/0.9/205	14/1.0/233		1.15/1.19/1.09	0.91/0.88/0.93
	350	0.53	14/1.1/237	16/1.2/268	18/1.4/302	21/1.6/340		1.15/1.19/1.09	0.91/0.88/0.93
	400	0.60	19/1.6/318	21/1.8/357	24/2.0/401	27/2.2/448		1.16/1.21/1.10	0.91/0.88/0.93
	450	0.68	23/2.1/402	26/2.4/451	29/2.6/503	33/2.9/561		1.18/1.23/1.11	0.91/0.88/0.93
	500	0.76	28/2.7/492	32/3.0/550	35/3.4/613	39/3.7/680		1.20/1.25/1.13	0.91/0.87/0.93
	550	0.83	33/3.4/592	37/3.8/661	41/4.2/733	45/4.7/811		1.22/1.28/1.15	0.91/0.88/0.93
	600	0.91	39/4.4/718	43/4.9/800	48/5.4/885	53/5.9/976		1.25/1.32/1.17	0.91/0.88/0.93
	CMBT SPD KIAS/MACH		60/8.0/1185	66/8.7/1301	72/9.5/1419	78/10.3/1542		1.19/1.22/1.10	0.92/0.90/0.94
			639/0.97	638/0.97	638/0.96	638/0.96		0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	3/0.2/44	3/0.2/52	4/0.2/61	4/0.3/71	5/0.3/82	1.14/1.17/1.08	0.91/0.88/0.94
	300	0.45	5/0.4/88	6/0.4/105	8/0.5/122	9/0.6/140	10/0.7/161	1.14/1.18/1.08	0.91/0.88/0.94
	350	0.53	8/0.6/134	10/0.7/159	11/0.9/184	13/1.0/211	15/1.1/240	1.14/1.18/1.08	0.92/0.88/0.94
	400	0.60	11/0.9/183	13/1.1/215	15/1.2/249	17/1.4/285	19/1.6/323	1.16/1.20/1.09	0.91/0.88/0.94
	450	0.68	14/1.2/234	16/1.5/276	19/1.7/319	21/1.9/363	24/2.2/410	1.18/1.23/1.11	0.91/0.88/0.94
	500	0.76	17/1.6/290	19/1.9/341	22/2.2/394	26/2.5/448	29/2.8/505	1.20/1.25/1.13	0.91/0.87/0.94
	550	0.83	20/2.1/354	23/2.4/416	27/2.8/479	30/3.2/544	34/3.6/612	1.22/1.29/1.15	0.91/0.88/0.93
	600	0.91	24/2.7/440	28/3.2/516	32/3.7/594	36/4.1/673	41/4.6/756	1.27/1.35/1.20	0.91/0.87/0.93
	CMBT SPD KIAS/MACH		37/4.9/728	42/5.7/839	48/6.4/949	54/7.1/1060	60/7.9/1172	1.17/1.20/1.08	0.92/0.89/0.93
			628/0.95	628/0.95	629/0.95	629/0.95	629/0.95	0.98/0.98	1.00/1.00

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.30	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.38	5/0.3/82	6/0.4/94	7/0.4/108	8/0.5/125		1.15/1.19/1.10	0.91/0.87/0.93
	300	0.45	10/0.7/161	11/0.8/183	13/0.9/208	15/1.0/236		1.15/1.19/1.10	0.91/0.88/0.93
	350	0.53	15/1.1/240	17/1.3/272	19/1.4/306	21/1.6/345		1.15/1.19/1.10	0.91/0.88/0.93
	400	0.60	19/1.6/323	22/1.8/364	24/2.0/408	27/2.2/456		1.17/1.21/1.10	0.91/0.88/0.93
	450	0.68	24/2.2/410	27/2.4/460	30/2.7/514	34/3.0/573		1.18/1.23/1.12	0.91/0.87/0.93
	500	0.76	29/2.8/505	32/3.1/565	36/3.5/629	40/3.8/698		1.20/1.26/1.14	0.90/0.87/0.93
	550	0.83	34/3.6/612	38/4.0/683	42/4.4/758	47/4.8/839		1.23/1.29/1.16	0.91/0.87/0.93
	600	0.91	41/4.6/756	46/5.2/841	50/5.7/931	56/6.2/1026		1.27/1.35/1.20	0.91/0.87/0.93
	CMBT SPD KIAS/MACH		60/7.9/1172	66/8.6/1290	72/9.4/1408	78/10.1/1530		1.18/1.20/1.09	0.92/0.89/0.93
			629/0.95	629/0.95	628/0.95	628/0.95		0.98/0.98	1.00/1.00

Figure C8-9. (Sheet 4)

MAX AB Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	3/0.2/38	4/0.3/46	5/0.3/55	6/0.4/65	7/0.5/77	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	6/0.5/76	8/0.6/92	9/0.7/110	11/0.9/129	13/1.0/150	1.11/1.15/1.09	0.93/0.90/0.92
	350	0.63	9/0.8/114	11/1.0/139	13/1.2/165	16/1.4/193	18/1.6/223	1.12/1.16/1.09	0.93/0.89/0.93
	400	0.72	12/1.2/154	15/1.4/187	17/1.7/222	20/1.9/258	23/2.2/297	1.13/1.17/1.09	0.92/0.89/0.93
	450	0.80	15/1.5/196	18/1.8/237	21/2.2/280	25/2.5/325	28/2.9/373	1.14/1.18/1.09	0.92/0.88/0.93
	500	0.89	18/1.9/239	21/2.3/289	25/2.7/340	29/3.2/394	33/3.6/451	1.15/1.20/1.10	0.91/0.87/0.93
	550	0.97	20/2.4/287	25/2.9/347	29/3.4/409	34/3.9/473	38/4.5/539	1.17/1.23/1.12	0.90/0.86/0.92
	600	1.06	24/3.1/357	29/3.7/431	34/4.4/507	40/5.0/586	45/5.7/667	1.24/1.32/1.19	0.89/0.84/0.91
	650	1.14	29/4.0/447	35/4.8/540	41/5.6/635	47/6.5/732	54/7.4/834	1.33/1.45/1.29	0.86/0.81/0.89
	700	1.23	35/5.2/567	42/6.3/684	49/7.3/803	57/8.5/927	65/9.6/1055	1.51/1.70/1.48	0.84/0.79/0.86
	750	1.32	42/6.9/733	51/8.3/883	60/9.7/1037	69/11.2/1196	78/12.7/1361		0.82/0.76/0.83
	LIMIT SPD KIAS/MACH		54/9.8/1019	65/11.8/1228	77/13.8/1442	88/16.0/1664	101/18.2/1896	1.97/2.21/1.90	0.78/0.72/0.79
			800/1.41	800/1.41	800/1.41	800/1.41	800/1.41	0.93/0.93	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 0	200	0.36	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/77	8/0.6/89	9/0.7/105			1.11/1.15/1.10	0.93/0.89/0.92
	300	0.54	13/1.0/150	15/1.2/173	17/1.3/200			1.11/1.16/1.09	0.93/0.89/0.92
	350	0.63	18/1.6/223	21/1.8/255	24/2.1/292			1.13/1.17/1.09	0.93/0.89/0.93
	400	0.72	23/2.2/297	27/2.5/338	30/2.8/384			1.13/1.18/1.10	0.92/0.89/0.93
	450	0.80	28/2.9/373	32/3.3/424	37/3.7/479			1.14/1.19/1.10	0.92/0.88/0.93
	500	0.89	33/3.6/451	38/4.1/511	43/4.6/576			1.15/1.21/1.11	0.91/0.87/0.92
	550	0.97	38/4.5/539	44/5.0/610	49/5.6/685			1.18/1.24/1.13	0.90/0.86/0.92
	600	1.06	45/5.7/667	51/6.4/752	58/7.2/843			1.24/1.33/1.19	0.89/0.84/0.91
	650	1.14	54/7.4/834	61/8.3/940	68/9.3/1051			1.34/1.46/1.30	0.86/0.81/0.88
	700	1.23	65/9.6/1055	73/10.8/1189	82/12.1/1329			1.53/1.73/1.51	0.84/0.78/0.86
	750	1.32	78/12.7/1361	88/14.3/1533	99/16.0/1714				0.82/0.76/0.83
	CMBT SPD KIAS/MACH		101/18.2/1896	114/20.5/2140	128/23.0/2397			1.81/1.99/1.72	0.78/0.72/0.78
			800/1.41	800/1.41	800/1.41			0.92/0.92	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	3/0.2/38	4/0.3/47	5/0.4/56	6/0.4/66	7/0.5/78	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	6/0.5/77	8/0.6/94	9/0.7/112	11/0.9/131	13/1.0/152	1.11/1.15/1.09	0.93/0.90/0.92
	350	0.63	9/0.8/116	11/1.0/141	14/1.2/168	16/1.4/196	18/1.6/226	1.12/1.16/1.09	0.93/0.89/0.93
	400	0.72	12/1.2/157	15/1.4/191	18/1.7/226	21/2.0/263	24/2.3/303	1.13/1.18/1.09	0.92/0.89/0.93
	450	0.80	15/1.6/201	19/1.9/243	22/2.2/287	25/2.6/333	29/3.0/382	1.14/1.19/1.10	0.92/0.88/0.93
	500	0.89	18/2.0/246	22/2.4/298	26/2.8/351	30/3.3/407	34/3.7/465	1.15/1.21/1.11	0.91/0.87/0.92
	550	0.97	21/2.5/302	26/3.0/364	30/3.6/429	35/4.1/496	40/4.7/566	1.19/1.26/1.14	0.90/0.86/0.92
	600	1.06	27/3.5/401	32/4.2/484	38/5.0/570	44/5.7/658	50/6.5/749	1.38/1.53/1.35	0.87/0.81/0.89
	650	1.14	34/5.0/551	42/6.0/665	49/7.1/782	57/8.2/903	64//9.3/1028	1.94/2.28/1.96	0.82/0.76/0.83
	700	1.23	48/7.8/831	58/9.4/1000	68/11.1/1174	78/12.8/1355	89/14.5/1545		0.74/0.67/0.74
	CMBT SPD KIAS/MACH		101/19.9/2024	118/23.2/2359	135/26.4/2691	154/29.9/3045	172/33.4/3405	0.97/0.90/0.82	0.85/0.83/0.89
			741/1.30	741/1.30	741/1.30	741/1.30	740/1.30	0.89/0.89	1.04/1.04

Figure C8-10. (Sheet 1)

MAX AB Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

- **STANDARD DAY TEMPERATURE (−5°C)**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20˚C	−20˚C
DRAG INDEX = 50	200	0.36	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/78	8/0.6/91	9/0.7/106			1.11/1.15/1.10	0.93/0.89/0.91
	300	0.54	13/1.0/152	15/1.2/176	17/1.4/203			1.12/1.16/1.09	0.93/0.89/0.92
	350	0.63	18/1.6/226	21/1.8/260	24/2.1/297			1.13/1.17/1.10	0.93/0.89/0.93
	400	0.72	24/2.3/303	27/2.6/346	31/2.9/393			1.14/1.18/1.10	0.92/0.88/0.93
	450	0.80	29/3.0/382	33/3.4/435	38/3.8/492			1.14/1.19/1.10	0.91/0.88/0.92
	500	0.89	34/3.7/465	39/4.2/527	44/4.8/594			1.16/1.21/1.11	0.91/0.87/0.92
	550	0.97	40/4.7/566	45/5.3/639	51/5.9/718			1.19/1.26/1.14	0.90/0.86/0.92
	600	1.06	50/6.5/749	57/7.3/845	64/8.2/947			1.39/1.55/1.37	0.86/0.81/0.88
	650	1.14	64//9.3/1028	73/10.5/1159	82/11.7/1298			2.06/2.46/2.10	0.82/0.75/0.83
	700	1.23	89/14.5/1545	101/16.4/1747	114/18.4/1962				0.74/0.67/0.74
	CMBT SPD KIAS/MACH		172/33.4/3405	192/36.9/3770	210/40.2/4106			0.95/0.88/0.80	0.83/0.80/0.86
			740/1.30	739/1.30	738/1.30			0.89/0.89	1.04/1.04

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20˚C	−20˚C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	3/0.2/38	4/0.3/47	5/0.4/57	6/0.4/67	7/0.5/78	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	7/0.5/78	8/0.6/95	10/0.8/113	11/0.9/133	13/1.0/154	1.11/1.15/1.09	0.93/0.90/0.92
	350	0.63	10/0.8/118	12/1.0/144	14/1.2/171	16/1.4/199	19/1.6/230	1.12/1.17/1.09	0.93/0.89/0.93
	400	0.72	13/1.2/161	15/1.5/195	18/1.7/231	21/2.0/269	24/2.3/309	1.13/1.18/1.09	0.92/0.89/0.93
	450	0.80	16/1.6/206	19/1.9/250	22/2.3/295	26/2.7/342	30/3.1/392	1.14/1.19/1.10	0.91/0.88/0.93
	500	0.89	19/2.1/254	23/2.5/308	27/2.9/363	31/3.4/420	35/3.9/480	1.16/1.22/1.11	0.91/0.87/0.92
	550	0.97	22/2.7/319	27/3.2/386	32/3.8/454	37/4.4/524	42/5.0/598	1.21/1.29/1.17	0.89/0.85/0.91
	600	1.06	32/4.5/503	39/5.4/608	46/6.4/716	53/7.4/827	61/8.4/944		0.80/0.73/0.81
	650	1.14	56/9.2/975	68/11.0/1170	80/13.0/1378	93/15.1/1599	107/17.3/1837		0.62/0.55/0.61
	CMBT SPD KIAS/MACH		85/15.1/1559	100/17.7/1832	116/20.4/2108	131/23.0/2380	147/25.5/2649	0.63/0.55/0.52	0.85/0.84/0.91
			662/1.16	663/1.16	663/1.16	662/1.16	661/1.16	0.87/0.88	1.05/1.05

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB	48,000 LB		+20˚C	−20˚C
DRAG INDEX = 100	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	7/0.5/78	8/0.6/92	9/0.7/108	11/0.8/127		1.11/1.15/1.10	0.93/0.89/0.91
	300	0.54	13/1.0/154	15/1.2/179	17/1.4/206	20/1.6/239		1.12/1.16/1.10	0.93/0.89/0.92
	350	0.63	19/1.6/230	22/1.9/264	25/2.1/303	28/2.4/347		1.13/1.18/1.10	0.92/0.89/0.92
	400	0.72	24/2.3/309	28/2.6/353	32/3.0/401	36/3.4/456		1.14/1.19/1.10	0.92/0.88/0.93
	450	0.80	30/3.1/392	34/3.5/446	39/3.9/505	44/4.4/570		1.15/1.20/1.11	0.91/0.87/0.92
	500	0.89	35/3.9/480	40/4.4/545	45/4.9/614	51/5.5/690		1.17/1.22/1.12	0.91/0.87/0.92
	550	0.97	42/5.0/598	48/5.6/675	54/6.3/758	60/7.0/849		1.22/1.29/1.17	0.89/0.85/0.91
	600	1.06	61/8.4/944	69/9.5/1067	78/10.6/1198	87/11.9/1341			0.79/0.73/0.80
	650	1.14	107/17.3/1837	121/19.8/2095	138/22.4/2376	155/25.3/2682			0.60/0.52/0.59
	CMBT SPD KIAS/MACH		147/25.5/2649	162/28.0/2915	177/30.5/3173	193/33.0/3442		0.61/0.53/0.51	0.85/0.84/0.91
			661/1.16	660/1.16	659/1.16	658/1.16		0.87/0.88	1.05/1.05

Figure C8-10. (Sheet 2)

MAX AB Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	**MACH**	**GW 24,000 LB**	**28,000 LB**	**32,000 LB**	**36,000 LB**	**40,000 LB**	**+20°C**	**−20°C**
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/48	5/0.4/57	6/0.4/68	7/0.5/79	8/0.6/93	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	8/0.6/96	10/0.8/115	11/0.9/135	13/1.0/157	15/1.2/181	1.11/1.16/1.09	0.93/0.89/0.92
	350	0.63	12/1.0/146	14/1.2/174	16/1.4/203	19/1.7/235	22/1.9/269	1.13/1.17/1.09	0.93/0.89/0.93
	400	0.72	16/1.5/199	19/1.8/236	22/2.1/275	25/2.4/316	28/2.7/361	1.14/1.18/1.10	0.92/0.88/0.93
	450	0.80	19/2.0/257	23/2.4/303	27/2.7/352	31/3.1/403	35/3.6/459	1.15/1.20/1.11	0.91/0.87/0.92
	500	0.89	23/2.6/319	28/3.0/376	32/3.5/435	37/4.0/497	42/4.5/564	1.17/1.23/1.12	0.90/0.86/0.92
	550	0.97	29/3.5/413	34/4.1/486	39/4.7/561	45/5.4/640	51/6.1/722	1.27/1.37/1.23	0.89/0.84/0.90
	CMBT SPD		58/8.8/949	66/9.9/1077	74/11.0/1202	82/12.1/1322	90/13.1/1435	0.88/0.84/0.79	1.71/1.91/2.01
	KIAS/MACH		584/1.03	584/1.03	583/1.03	582/1.03	581/1.03	0.96/0.96	1.10/1.10

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	**MACH**	**GW 40,000 LB**	**44,000 LB**	**48,000 LB**	**52,000 LB**		**+20°C**	**−20°C**
DRAG INDEX = 150	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	8/0.6/93	9/0.7/109	11/0.8/129	14/1.0/156		1.12/1.16/1.11	0.92/0.89/0.91
	300	0.54	15/1.2/181	18/1.4/210	20/1.6/243	24/1.9/285		1.13/1.17/1.10	0.92/0.89/0.92
	350	0.63	22/1.9/269	25/2.2/308	29/2.5/353	33/2.9/408		1.14/1.18/1.11	0.92/0.89/0.92
	400	0.72	28/2.7/361	32/3.0/411	37/3.5/467	42/3.9/533		1.15/1.19/1.11	0.92/0.88/0.92
	450	0.80	35/3.6/459	40/4.0/519	45/4.5/587	51/5.1/665		1.16/1.21/1.12	0.91/0.87/0.92
	500	0.89	42/4.5/564	47/5.1/635	53/5.7/714	60/6.4/804		1.18/1.23/1.13	0.90/0.86/0.92
	550	0.97	51/6.1/722	57/6.8/811	64/7.6/907	72/8.4/1015		1.28/1.38/1.24	0.88/0.84/0.90
	CMBT SPD		90/13.1/1435	97/14.0/1543	105/14.9/1652	114/15.9/1772		0.95/0.91/0.85	1.78/2.03/2.11
	KIAS/MACH		581/1.03	581/1.02	580/1.02	578/1.02		0.96/0.96	1.10/1.10

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	**MACH**	**GW 24,000 LB**	**28,000 LB**	**32,000 LB**	**36,000 LB**	**40,000 LB**	**+20°C**	**−20°C**
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/48	5/0.4/58	6/0.4/68	7/0.5/80	8/0.6/94	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	8/0.7/98	10/0.8/116	11/0.9/137	13/1.1/159	15/1.2/184	1.11/1.16/1.09	0.93/0.89/0.92
	350	0.63	12/1.1/149	14/1.3/177	17/1.5/207	19/1.7/239	22/1.9/274	1.13/1.17/1.10	0.93/0.89/0.93
	400	0.72	16/1.5/204	19/1.8/241	22/2.1/281	25/2.4/323	29/2.8/369	1.14/1.19/1.10	0.92/0.88/0.93
	450	0.80	20/2.1/264	24/2.4/312	28/2.8/362	32/3.2/415	36/3.7/472	1.15/1.21/1.11	0.91/0.87/0.92
	500	0.89	24/2.7/331	29/3.2/390	33/3.7/451	38/4.2/516	43/4.7/585	1.18/1.24/1.13	0.90/0.86/0.92
	550	0.97	31/3.9/454	37/4.5/533	43/5.2/616	49/6.0/702	55/6.7/793		0.87/0.82/0.88
	CMBT SPD		44/6.2/688	51/7.1/791	58/8.0/896	65/8.9/1002	73/9.8/1111	1.10/1.12/1.02	1.08/1.09/1.17
	KIAS/MACH		563/0.99	563/0.99	562/0.99	562/0.99	562/0.99	0.97/0.98	1.02/1.02

Figure C8-10. (Sheet 3)

MAX AB Accelerations — 10,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−5°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	8/0.6/94	10/0.7/111	11/0.8/131	14/1.0/159		1.12/1.16/1.11	0.92/0.89/0.91
	300	0.54	15/1.2/184	18/1.4/213	21/1.6/247	25/1.9/291		1.13/1.17/1.11	0.92/0.89/0.92
	350	0.63	22/1.9/274	26/2.2/314	29/2.5/361	34/2.9/417		1.14/1.18/1.11	0.92/0.89/0.92
	400	0.72	29/2.8/369	33/3.1/420	38/3.5/478	43/4.0/547		1.15/1.20/1.11	0.92/0.88/0.92
	450	0.80	36/3.7/472	41/4.2/535	46/4.7/605	53/5.3/686		1.16/1.21/1.12	0.91/0.87/0.92
	500	0.89	43/4.7/585	49/5.3/659	55/6.0/741	62/6.7/835		1.18/1.24/1.14	0.90/0.86/0.91
	550	0.97	55/6.7/793	62/7.5/890	69/8.4/996	78/9.4/1114			0.87/0.82/0.88
	CMBT SPD KIAS/MACH		73/9.8/1111	81/10.8/1224	89/11.8/1345	98/12.9/1473		1.11/1.13/1.03	1.04/1.04/1.12
			562/0.99	561/0.99	561/0.99	561/0.99		0.97/0.98	1.02/1.02

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	4/0.3/49	5/0.4/58	6/0.4/69	7/0.5/81	8/0.6/95	1.10/1.14/1.09	0.93/0.90/0.92
	300	0.54	8/0.7/99	10/0.8/118	12/0.9/139	14/1.1/161	16/1.3/187	1.12/1.16/1.09	0.93/0.89/0.92
	350	0.63	12/1.1/152	15/1.3/180	17/1.5/210	20/1.7/243	23/2.0/279	1.13/1.18/1.10	0.92/0.89/0.93
	400	0.72	16/1.6/209	19/1.8/247	23/2.2/288	26/2.5/331	30/2.8/378	1.14/1.19/1.10	0.92/0.88/0.93
	450	0.80	21/2.1/272	24/2.5/321	28/2.9/373	32/3.3/428	37/3.8/487	1.16/1.21/1.12	0.91/0.87/0.92
	500	0.89	25/2.8/344	30/3.3/405	34/3.8/469	39/4.4/536	45/4.9/608	1.19/1.25/1.14	0.90/0.86/0.91
	550	0.97	37/4.8/555	44/5.7/649	50/6.5/749	58/7.4/855	65/8.4/969		0.80/0.74/0.81
	CMBT SPD KIAS/MACH		43/5.9/663	50/6.8/764	57/7.7/867	64/8.6/971	71/9.5/1078	1.12/1.14/1.04	0.94/0.91/0.98
			552/0.98	552/0.98	552/0.98	552/0.98	551/0.98	0.98/0.98	1.01/1.01

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 250	200	0.36	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.45	8/0.6/95	10/0.7/112	12/0.8/134	14/1.0/163		1.12/1.16/1.11	0.92/0.89/0.91
	300	0.54	16/1.3/187	18/1.4/216	21/1.7/252	25/2.0/297		1.13/1.17/1.11	0.92/0.89/0.92
	350	0.63	23/2.0/279	26/2.3/320	30/2.6/368	35/3.0/426		1.14/1.19/1.11	0.92/0.88/0.92
	400	0.72	30/2.8/378	34/3.2/431	39/3.6/490	44/4.1//561		1.15/1.20/1.12	0.91/0.88/0.92
	450	0.80	37/3.8/487	42/4.3/551	48/4.8/623	54/5.5/708		1.17/1.22/1.13	0.91/0.87/0.92
	500	0.89	45/4.9/608	50/5.5/685	57/6.2/771	64/7.0/869		1.19/1.26/1.15	0.90/0.85/0.91
	550	0.97	65/8.4/969	74/9.5/1093	83/10.6/1232	94/12.0/1393			0.79/0.72/0.79
	CMBT SPD KIAS/MACH		71/9.5/1078	79/10.4/1190	88/11.4/1309	97/12.4/1438		1.13/1.15/1.05	0.93/0.91/0.98
			551/0.98	551/0.97	551/0.97	550/0.97		0.98/0.98	1.01/1.01

Figure C8-10. (Sheet 4)

MAX AB Accelerations — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	6/0.5/44	7/0.6/54	8/0.7/66	10/0.9/80	12/1.0/96	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	11/1.0/86	13/1.2/106	16/1.5/128	19/1.7/153	22/2.1/182	1.08/1.12/1.10	0.92/0.88/0.93
	350	0.75	15/1.5/129	19/1.9/158	23/2.3/190	27/2.7/224	31/3.1/264	1.08/1.13/1.11	0.92/0.88/0.93
	400	0.85	20/2.1/173	24/2.6/211	29/3.1/252	34/3.6/296	39/4.2/346	1.09/1.14/1.11	0.92/0.88/0.93
	450	0.95	24/2.8/220	29/3.4/268	34/4.0/319	40/4.7/374	47/5.4/434	1.11/1.16/1.11	0.92/0.88/0.92
	500	1.05	29/3.6/284	34/4.4/346	41/5.2/411	48/6.0/479	56/7.0/554	1.14/1.21/1.14	0.91/0.87/0.92
	550	1.14	34/4.6/363	42/5.6/441	49/6.7/523	58/7.8/609	67/8.9/702	1.19/1.28/1.18	0.89/0.85/0.90
	600	1.24	40/5.8/454	49/7.1/551	58/8.4/653	67/9.8/759	78/11.2/873	1.26/1.37/1.26	0.87/0.82/0.88
	650	1.34	47/7.3/565	57/8.9/685	67/10.5/811	78/12.2/942	90/14.0/1083	1.39/1.54/1.39	0.85/0.79/0.86
	700	1.45	55/9.3/720	67/11.3/873	79/13.3/1033	92/15.5/1200	106/17.8/1378	1.78/2.11/1.87	0.81/0.74/0.81
	750	1.56	67/12.4/952	81/14.9/1153	96/17.7/1362	112/20.5/1584	129/23.6/1821		0.75/0.67/0.74
	LIMIT SPD KIAS/MACH		107/23.6/1796	130/28.7/2183	155/34.2/2595	182/40.3/3060	217/48.5/3679	1.28/1.26/1.12	0.52/0.42/0.47
			800/1.68	800/1.68	800/1.68	800/1.68	800/1.68	0.89/0.88	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 0	200	0.44	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.0/96	15/1.2/117	19/1.5/145			1.09/1.13/1.10	0.91/0.88/0.92
	300	0.65	22/2.1/182	27/2.5/216	32/2.9/260			1.09/1.13/1.10	0.92/0.88/0.93
	350	0.75	31/3.1/264	37/3.7/310	44/4.3/366			1.09/1.13/1.11	0.92/0.88/0.93
	400	0.85	39/4.2/346	46/4.9/402	54/5.7/470			1.10/1.15/1.12	0.92/0.88/0.92
	450	0.95	47/5.4/434	54/6.2/502	63/7.2/581			1.11/1.17/1.12	0.92/0.88/0.92
	500	1.05	56/7.0/554	65/8.0/637	75/9.2/732			1.15/1.21/1.14	0.91/0.87/0.91
	550	1.14	67/8.9/702	77/10.2/804	88/11.7/920			1.20/1.28/1.19	0.89/0.84/0.90
	600	1.24	78/11.2/873	89/12.8/997	102/14.5/1136			1.27/1.39/1.27	0.87/0.82/0.88
	650	1.34	90/14.0/1083	103/15.9/1234	118/18.0/1401			1.41/1.57/1.42	0.84/0.78/0.85
	700	1.45	106/17.8/1378	122/20.2/1569	139/22.9/1779			1.95/2.37/2.09	0.80/0.74/0.80
	750	1.56	129/23.6/1821	147/26.9/2076	168/30.4/2356				0.74/0.66/0.73
	LIMIT SPD KIAS/MACH		217/48.5/3679	243/53.7/4082	271/59.2/4504			1.14/1.09/0.97	0.51/0.40/0.45
			800/1.68	798/1.67	797/1.67			0.88/0.87	1.00/1.00

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	6/0.5/44	7/0.6/55	9/0.7/67	10/0.9/81	12/1.0/98	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	11/1.0/88	13/1.2/108	16/1.5/131	19/1.8/156	23/2.1/186	1.08/1.12/1.10	0.92/0.88/0.93
	350	0.75	16/1.6/132	19/1.9/162	23/2.3/194	27/2.8/230	32/3.2/271	1.08/1.13/1.11	0.92/0.88/0.93
	400	0.85	20/2.2/178	25/2.7/217	29/3.2/260	35/3.8/306	41/4.4/357	1.10/1.14/1.11	0.92/0.88/0.93
	450	0.95	25/2.9/230	30/3.5/280	36/4.2/333	42/4.9/390	49/5.6/453	1.12/1.17/1.12	0.92/0.88/0.92
	500	1.05	31/4.0/312	38/4.8/379	45/5.7/450	52/6.7/526	61/7.7/608	1.18/1.25/1.17	0.90/0.86/0.91
	550	1.14	39/5.4/423	47/6.6/514	56/7.8/609	65/9.1/710	76/10.5/818	1.29/1.41/1.29	0.87/0.82/0.88
	600	1.24	48/7.3/562	58/8.8/683	69/10.5/809	80/12.2/941	93/14.0/1083	1.55/1.75/1.58	0.83/0.77/0.84
	650	1.34	60/10.0/773	73/12.2/936	87/14.4/1108	101/16.7/1290	117/19.2/1484		0.77/0.71/0.77
	700	1.45	89/16.8/1298	107/20.4/1572	128/24.2/1869	150/28.4/2193	174/33.1/2555		0.62/0.53/0.59
	CMBT SPD KIAS/MACH		148/32.0/2457	175/37.5/2882	204/43.5/3344	230/48.7/3746	257/53.8/4145	0.91/0.83/0.74	0.63/0.59/0.67
			721/1.50	721/1.50	720/1.50	719/1.49	717/1.49	0.87/0.87	1.11/1.12

Figure C8-11. (Sheet 1)

MAX AB Accelerations — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 36,000 LB	40,000 LB	44,000 LB			TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 50	200	0.44	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	12/1.0/98	15/1.3/119	19/1.6/149			1.09/1.13/1.10	0.91/0.87/0.92
	300	0.65	23/2.1/186	27/2.5/221	33/3.0/267			1.09/1.13/1.11	0.91/0.88/0.92
	350	0.75	32/3.2/271	38/3.8/318	45/4.5/377			1.09/1.13/1.11	0.91/0.88/0.93
	400	0.85	41/4.4/357	48/5.1/416	56/5.9/486			1.10/1.15/1.12	0.92/0.88/0.92
	450	0.95	49/5.6/453	57/6.5/524	66/7.5/607			1.12/1.17/1.12	0.91/0.88/0.92
	500	1.05	61/7.7/608	70/8.8/699	81/10.1/804			1.18/1.26/1.18	0.90/0.85/0.90
	550	1.14	76/10.5/818	87/12.0/938	100/13.7/1073			1.31/1.43/1.31	0.87/0.82/0.87
	600	1.24	93/14.0/1083	107/16.0/1238	122/18.2/1411			1.60/1.83/1.65	0.83/0.77/0.83
	650	1.34	117/19.2/1484	134/22.0/1695	153/25.0/1930				0.77/0.70/0.76
	700	1.45	174/33.1/2555	202/38.5/2971	236/44.8/3463				0.60/0.51/0.56
	CMBT SPD KIAS/MACH		257/53.8/4145	284/58.9/4540	312/64.0/4938			0.91/0.83/0.74	0.69/0.66/0.74
			717/1.49	714/1.48	712/1.48			0.87/0.86	1.12/1.13

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	6/0.5/45	7/0.6/56	9/0.7/68	11/0.9/82	13/1.1/100	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	11/1.0/90	14/1.3/111	16/1.5/134	20/1.8/160	23/2.2/190	1.08/1.12/1.10	0.92/0.88/0.93
	350	0.75	16/1.6/136	20/2.0/166	24/2.4/200	28/2.8/236	33/3.3/278	1.08/1.13/1.11	0.92/0.88/0.93
	400	0.85	21/2.3/183	25/2.8/224	30/3.3/268	36/3.9/316	42/4.5/369	1.10/1.15/1.12	0.92/0.88/0.93
	450	0.95	26/3.0/240	31/3.7/293	37/4.4/348	44/5.1/408	51/5.9/474	1.12/1.18/1.13	0.92/0.88/0.92
	500	1.05	35/4.5/357	42/5.5/434	50/6.6/516	59/7.7/603	68/8.9/698	1.29/1.41/1.31	0.88/0.83/0.88
	550	1.14	48/7.0/545	58/8.6/663	69/10.2/787	81/11.9/919	94/13.7/1062	1.96/2.28/2.04	0.82/0.76/0.81
	600	1.24	68/11.2/859	83/13.6/1042	98/16.1/1236	115/18.8/1445	133/21.8/1670		0.72/0.65/0.70
	CMBT SPD KIAS/MACH		128/24.3/1854	151/28.5/2178	174/32.8/2508	199/37.3/2848	225/41.9/3205	1.03/0.98/0.88	1.20/1.30/1.48
			635/1.31	635/1.31	634/1.31	633/1.31	632/1.31	0.88/0.88	1.13/1.13

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 36,000 LB	40,000 LB	44,000 LB	48,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 100	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	13/1.1/100	16/1.3/122	20/1.6/153	26/2.2/203		1.09/1.14/1.10	0.91/0.87/0.92
	300	0.65	23/2.2/190	28/2.6/227	34/3.1/275	43/3.9/345		1.09/1.13/1.11	0.91/0.87/0.92
	350	0.75	33/3.3/278	39/3.9/328	47/4.6/389	57/5.6/474		1.09/1.14/1.12	0.91/0.87/0.92
	400	0.85	42/4.5/369	49/5.3/430	58/6.2/504	70/7.3/602		1.11/1.15/1.12	0.91/0.88/0.92
	450	0.95	51/5.9/474	59/6.8/548	69/7.9/636	82/9.2/749		1.13/1.18/1.13	0.91/0.87/0.92
	500	1.05	68/8.9/698	79/10.2/805	91/11.7/928	107/13.6/1080		1.33/1.47/1.36	0.87/0.83/0.88
	550	1.14	94/13.7/1062	108/15.7/1221	125/18.0/1402	146/20.7/1620		2.26/2.70/2.41	0.81/0.75/0.80
	600	1.24	133/21.8/1670	154/25.0/1921	177/28.7/2209	206/33.1/2551			0.70/0.63/0.69
	CMBT SPD KIAS/MACH		225/41.9/3205	253/46.7/3572	284/52.1/3987	315/56.9/4362		1.03/0.98/0.89	1.13/1.22/1.39
			632/1.31	631/1.30	629/1.30	626/1.30		0.88/0.88	1.13/1.13

Figure C8-11. (Sheet 2)

MAX AB Accelerations — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	7/0.6/57	9/0.7/69	11/0.9/84	13/1.1/102	16/1.3/125	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	14/1.3/113	17/1.6/137	20/1.9/163	24/2.2/195	29/2.6/233	1.08/1.13/1.10	0.92/0.88/0.93
	350	0.75	20/2.0/171	24/2.5/205	29/2.9/243	34/3.4/286	40/4.0/337	1.09/1.13/1.11	0.92/0.88/0.93
	400	0.85	26/2.9/232	31/3.4/277	37/4.0/326	43/4.7/381	51/5.5/445	1.10/1.15/1.12	0.92/0.88/0.92
	450	0.95	33/3.9/308	39/4.6/366	46/5.4/429	53/6.2/498	62/7.2/577	1.13/1.19/1.14	0.91/0.87/0.92
	500	1.05	53/7.5/581	64/8.9/695	76/10.5/822	89/12.4/966	105/14.6/1138		0.79/0.73/0.78
	550	1.14	108/17.8/1358	131/21.4/1637	155/25.5/1947	184/30.2/2309	220/36.1/2760		0.57/0.50/0.54
	CMBT SPD KIAS/MACH		158/27.7/2104	185/32.3/2455	213/36.8/2804	241/41.5/3165	275/47.0/3582	0.44/0.37/0.35	0.94/0.97/1.07
			565/1.17	565/1.17	564/1.17	562/1.17	561/1.16	0.86/0.87	1.10/1.10

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 150	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	16/1.3/125	20/1.7/157	27/2.2/210	42/3.5/331		1.11/1.15/1.12	0.90/0.86/0.91
	300	0.65	29/2.6/233	35/3.2/283	44/4.0/356	63/5.6/502		1.10/1.14/1.12	0.90/0.87/0.91
	350	0.75	40/4.0/337	48/4.8/402	59/5.8/491	80/7.6/655		1.10/1.15/1.13	0.90/0.87/0.92
	400	0.85	51/5.5/445	60/6.4/523	72/7.6/627	94/9.6/806		1.11/1.16/1.13	0.91/0.87/0.91
	450	0.95	62/7.2/577	72/8.3/670	86/9.7/790	110/12.0/986		1.14/1.20/1.15	0.90/0.87/0.91
	500	1.05	105/14.6/1138	124/17.3/1350	150/20.8/1632	192/26.2/2070			0.75/0.68/0.72
	550	1.14	220/36.1/2760	266/43.7/3347	329/54.2/4155	427/70.0/5373			0.50/0.43/0.47
	CMBT SPD KIAS/MACH		275/47.0/3582	316/53.6/4087	371/62.4/4768	457/75.9/5815		0.40/0.33/0.31	0.85/0.86/0.95
			561/1.16	559/1.16	556/1.16	554/1.15		0.86/0.87	1.10/1.10

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DRAG INDEX = 200	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	7/0.6/58	9/0.8/71	11/0.9/86	13/1.1/104	16/1.4/127	1.08/1.12/1.09	0.92/0.88/0.93
	300	0.65	14/1.3/116	17/1.6/140	21/1.9/167	25/2.3/199	29/2.7/239	1.08/1.13/1.10	0.92/0.88/0.93
	350	0.75	21/2.1/175	25/2.5/211	30/3.0/250	35/3.5/295	41/4.1/348	1.09/1.13/1.11	0.92/0.88/0.93
	400	0.85	27/3.0/240	32/3.5/287	38/4.2/338	45/4.9/395	53/5.7/462	1.11/1.16/1.12	0.92/0.88/0.92
	450	0.95	34/4.1/325	41/4.9/387	48/5.7/453	56/6.6/527	65/7.6/610	1.14/1.21/1.15	0.91/0.87/0.91
	CMBT SPD KIAS/MACH		64/9.2/717	74/10.5/814	83/11.7/908	93/12.8/1001	102/13.9/1089	0.95/0.95/0.89	1.14/1.16/1.23
			483/1.01	482/1.01	481/1.01	480/1.01	479/1.01	0.98/0.98	1.03/1.03

Figure C8-11. (Sheet 3)

MAX AB Accelerations — 20,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−25°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DI = 200	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	16/1.4/127	21/1.7/161	28/2.3/218	45/3.7/353		1.11/1.15/1.12	0.89/0.86/0.90
	300	0.65	29/2.7/239	36/3.3/291	46/4.1/369	66/5.9/531		1.10/1.15/1.12	0.90/0.87/0.91
	350	0.75	41/4.1/348	50/4.9/415	61/6.0/510	84/8.0/690		1.11/1.15/1.13	0.90/0.87/0.91
	400	0.85	53/5.7/462	62/6.6/543	75/7.9/654	100/10.1/850		1.12/1.17/1.14	0.90/0.87/0.91
	450	0.95	65/7.6/610	76/8.8/710	91/10.4/839	117/12.8/1055		1.15/1.22/1.16	0.90/0.86/0.90
	CMBT SPD KIAS/MACH		102/13.9/1089	113/15.0/1177	124/15.9/1264	152/18.6/1496		1.06/1.08/1.02	1.09/1.11/1.18
			479/1.01	477/1.00	475/1.00	474/1.00		0.98/0.98	1.02/1.02

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	8/0.6/59	9/0.8/72	11/0.9/87	14/1.1/106	17/1.4/130	1.08/1.13/1.09	0.92/0.88/0.93
	300	0.65	15/1.3/118	18/1.6/143	21/1.9/171	25/2.3/204	30/2.8/245	1.08/1.13/1.10	0.92/0.88/0.93
	350	0.75	21/2.2/180	26/2.6/217	31/3.1/257	36/3.6/304	43/4.3/359	1.09/1.14/1.12	0.91/0.88/0.93
	400	0.85	28/3.1/249	34/3.7/297	40/4.3/351	47/5.1/410	55/5.9/480	1.11/1.16/1.13	0.91/0.88/0.92
	450	0.95	36/4.4/347	43/5.2/413	51/6.1/484	59/7.1/562	69/8.2/652	1.17/1.24/1.17	0.90/0.86/0.91
	CMBT SPD KIAS/MACH		54/7.4/575	63/8.5/665	73/9.7/759	83/10.9/857	94/12.2/963	1.08/1.11/1.04	0.94/0.91/0.96
			470/0.99	469/0.99	469/0.99	468/0.99	468/0.99	0.98/0.98	1.01/1.01

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.44	0/0/0	0/0/0	0/0/0	0/0/0		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.55	17/1.4/130	21/1.8/166	29/2.4/226	49/4.0/380		1.11/1.15/1.12	0.89/0.86/0.90
	300	0.65	30/2.8/245	37/3.4/299	47/4.3/382	71/6.2/564		1.11/1.15/1.12	0.90/0.86/0.91
	350	0.75	43/4.3/359	51/5.1/429	64/6.2/530	89/8.4/731		1.11/1.15/1.13	0.90/0.87/0.91
	400	0.85	55/5.9/480	65/6.9/566	79/8.3/683	106/10.7/902		1.12/1.17/1.14	0.90/0.87/0.91
	450	0.95	69/8.2/652	81/9.5/759	97/11.1/898	126/13.9/1141		1.18/1.25/1.19	0.89/0.86/0.90
	CMBT SPD KIAS/MACH		94/12.2/963	107/13.7/1085	124/15.6/1238	154/18.4/1490		1.10/1.13/1.06	0.93/0.90/0.95
			468/0.99	467/0.98	466/0.98	465/0.98		0.98/0.98	1.01/1.01

Figure C8-11. (Sheet 4)

MAX AB Accelerations — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 0	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	10/0.9/55	12/1.2/69	15/1.5/87	19/1.9/109	25/2.4/140	1.10/1.15/1.07	0.90/0.86/0.93
	300	0.79	18/2.0/107	23/2.4/134	28/3.0/165	34/3.7/204	43/4.6/253	1.10/1.14/1.08	0.90/0.86/0.93
	350	0.91	25/3.0/157	32/3.7/195	39/4.5/239	47/5.5/290	58/6.6/354	1.10/1.14/1.09	0.91/0.87/0.93
	400	1.02	33/4.2/217	41/5.2/269	50/6.3/326	60/7.5/393	73/9.0/473	1.11/1.16/1.11	0.90/0.86/0.92
	450	1.13	42/5.7/295	51/7.0/364	62/8.5/440	75/10.1/526	90/12.1/629	1.14/1.20/1.14	0.90/0.86/0.91
	500	1.25	50/7.3/385	62/9.0/473	75/10.9/570	89/12.9/679	107/15.3/807	1.19/1.26/1.18	0.89/0.85/0.90
	550	1.37	59/9.2/489	72/11.3/601	87/13.6/722	104/16.1/858	124/19.0/1014	1.24/1.34/1.24	0.88/0.83/0.88
	600	1.49	68/11.4/615	84/14.0/754	101/16.8/906	120/19.9/1073	143/23.4/1263	1.33/1.46/1.34	0.85/0.80/0.86
	650	1.62	80/14.3/783	98/17.6/960	118/21.1/1152	140/24.9/1363	166/29.3/1600	1.65/1.93/1.74	0.82/0.75/0.81
	700	1.75	99/19.7/1085	121/24.1/1330	146/29.0/1598	174/34.3/1892	205/40.3/2225		0.74/0.65/0.71
	CMBT SPD KIAS/MACH		159/37.7/2070	190/44.5/2449	224/51.9/2856	258/59.3/3268	297/67.3/3707	1.10/1.06/0.94	0.74/0.70/0.79
			731/1.84	731/1.84	730/1.84	728/1.83	727/1.83	0.90/0.89	1.10/1.11

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 0	200	0.54	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	25/2.4/140	34/3.3/191	55/5.3/312			1.14/1.18/1.11	0.87/0.83/0.90
	300	0.79	43/4.6/253	56/5.9/327	82/8.5/476			1.12/1.17/1.10	0.88/0.84/0.91
	350	0.91	58/6.6/354	73/8.3/443	101/11.2/610			1.12/1.17/1.11	0.89/0.85/0.91
	400	1.02	73/9.0/473	90/11.0/581	121/14.4/769			1.13/1.18/1.13	0.89/0.85/0.91
	450	1.13	90/12.1/629	110/14.6/761	144/18.5/976			1.16/1.22/1.16	0.89/0.85/0.90
	500	1.25	107/15.3/807	129/18.3/966	166/22.7/1211			1.20/1.28/1.20	0.88/0.84/0.89
	550	1.37	124/19.0/1014	149/22.6/1204	189/27.6/1483			1.26/1.37/1.27	0.87/0.82/0.87
	600	1.49	143/23.4/1263	171/27.6/1491	214/33.3/1809			1.37/1.51/1.39	0.84/0.79/0.85
	650	1.62	166/29.3/1600	197/34.4/1879	244/41.1/2254			1.93/2.37/2.13	0.81/0.74/0.80
	700	1.75	205/40.3/2225	244/47.3/2614	299/56.2/3113				0.72/0.63/0.69
	CMBT SPD KIAS/MACH		297/67.3/3707	341/75.8/4185	401/86.3/4773			1.12/1.08/0.96	0.82/0.82/0.92
			727/1.83	725/1.82	723/1.82			0.90/0.89	1.10/1.12

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 50	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	10/1.0/56	12/1.2/71	16/1.5/89	20/1.9/113	25/2.5/145	1.10/1.15/1.07	0.90/0.86/0.93
	300	0.79	19/2.0/110	23/2.5/138	29/3.1/171	36/3.8/211	45/4.8/263	1.10/1.15/1.08	0.90/0.86/0.93
	350	0.91	26/3.1/163	33/3.8/203	40/4.7/249	49/5.7/302	60/6.9/370	1.10/1.15/1.09	0.90/0.86/0.93
	400	1.02	35/4.5/235	44/5.6/291	54/6.8/353	65/8.2/426	79/9.9/515	1.12/1.18/1.12	0.90/0.86/0.92
	450	1.13	47/6.6/339	58/8.1/418	70/9.8/507	85/11.7/608	102/14.1/729	1.18/1.25/1.19	0.89/0.85/0.90
	500	1.25	59/8.8/463	72/10.9/570	87/13.1/688	105/15.6/822	126/18.6/979	1.27/1.37/1.28	0.88/0.83/0.87
	550	1.37	72/11.7/627	89/14.4/771	107/17.4/929	129/20.7/1106	153/24.6/1313	1.46/1.63/1.50	0.84/0.79/0.84
	600	1.49	89/15.8/857	110/19.4/1054	133/23.4/1270	159/27.8/1512	189/33.0/1790		0.79/0.73/0.78
	650	1.62	120/23.7/1309	148/29.2/1614	180/35.4/1957	216/42.4/2350	259/50.7/2812		0.68/0.60/0.64
	CMBT SPD KIAS/MACH		180/39.9/2238	217/47.9/2683	255/55.8/3123	296/64.1/3588	341/73.0/4083	1.14/1.09/0.97	0.95/0.99/1.13
			670/1.67	669/1.67	668/1.67	666/1.66	664/1.66	0.88/0.88	1.12/1.14

Figure C8-12. (Sheet 1)

MAX AB Accelerations — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB			+20°C	−20°C
DRAG INDEX = 50	200	0.54	0/0/0	0/0/0	0/0/0			1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	25/2.5/145	35/3.4/200	60/5.7/338			1.14/1.19/1.11	0.87/0.83/0.90
	300	0.79	45/4.8/263	58/6.2/342	88/9.1/510			1.13/1.18/1.11	0.88/0.84/0.91
	350	0.91	60/6.9/370	76/8.7/466	109/12.0/654			1.12/1.17/1.11	0.88/0.85/0.91
	400	1.02	79/9.9/515	98/12.1/635	134/16.0/851			1.14/1.20/1.14	0.88/0.84/0.90
	450	1.13	102/14.1/729	126/17.0/886	166/21.7/1145			1.21/1.28/1.21	0.87/0.83/0.89
	500	1.25	126/18.6/979	153/22.3/1178	198/27.9/1484			1.31/1.42/1.32	0.86/0.82/0.86
	550	1.37	153/24.6/1313	185/29.3/1567	235/35.9/1935			1.56/1.76/1.63	0.83/0.78/0.83
	600	1.49	189/33.0/1790	227/39.1/2127	285/47.4/2590				0.78/0.71/0.76
	650	1.62	259/50.7/2812	312/60.7/3369	387/73.8/4104				0.65/0.56/0.60
	CMBT SPD KIAS/MACH		341/73.0/4083	393/82.7/4624	463/93.9/5258			1.11/1.05/0.93	0.92/0.96/1.09
			664/1.66	662/1.65	660/1.64			0.87/0.87	1.13/1.14

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	+20°C	−20°C
DRAG INDEX = 100	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	10/1.0/57	13/1.3/73	16/1.6/92	20/2.0/116	26/2.6/151	1.10/1.15/1.08	0.90/0.86/0.93
	300	0.79	19/2.1/114	24/2.6/143	30/3.2/177	37/4.0/219	46/5.0/274	1.10/1.15/1.08	0.90/0.86/0.93
	350	0.91	27/3.2/170	34/4.0/212	42/4.9/259	51/6.0/316	63/7.3/388	1.10/1.15/1.09	0.90/0.86/0.93
	400	1.02	39/5.0/260	48/6.2/322	59/7.6/392	71/9.2/474	87/11.1/575	1.15/1.21/1.15	0.89/0.85/0.91
	450	1.13	56/8.1/417	70/10.0/516	85/12.2/628	103/14.7/758	125/17.8/917	1.30/1.40/1.32	0.87/0.82/0.87
	500	1.25	75/11.8/621	93/14.6/767	113/17.7/930	136/21.3/1119	165/25.6/1346	1.73/1.96/1.83	0.84/0.79/0.83
	550	1.37	107/18.7/1009	133/23.2/1248	162/28.2/1520	196/34.1/1840	238/41.4/2234		0.74/0.67/0.71
	CMBT SPD KIAS/MACH		205/41.7/2314	243/49.0/2719	283/56.5/3128	323/63.6/3515	371/72.2/3986	0.87/0.81/0.72	1.04/1.12/1.29
			591/1.47	589/1.46	587/1.46	584/1.45	581/1.44	0.86/0.87	1.16/1.17

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 36,000 LB	40,000 LB	44,000 LB	48,000 LB		+20°C	−20°C
DRAG INDEX = 100	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0*		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	26/2.6/151	37/3.6/210	65/6.3/370	63/6.4/364		1.15/1.19/1.12	0.86/0.83/0.89
	300	0.79	46/5.0/274	61/6.5/359	95/9.8/552	101/10.8/594		1.13/1.18/1.11	0.88/0.84/0.90
	350	0.91	63/7.3/388	80/9.2/491	117/12.9/706	127/14.5/775		1.13/1.17/1.12	0.88/0.84/0.91
	400	1.02	87/11.1/575	109/13.7/714	151/18.3/972	169/21.1/1104		1.18/1.24/1.18	0.87/0.83/0.89
	450	1.13	125/17.8/917	155/21.8/1128	207/28.2/1477	240/33.6/1742		1.38/1.51/1.42	0.85/0.80/0.85
	500	1.25	165/25.6/1346	202/31.1/1640	264/39.4/2092	310/47.3/2498			0.82/0.77/0.81
	550	1.37	238/41.4/2234	294/50.8/2746	380/64.2/3485	462/80.0/4332			0.70/0.63/0.67
	CMBT SPD KIAS/MACH		371/72.2/3986	431/82.5/4547	518/95.8/5284	595/110.4/6058		0.86/0.79/0.70	1.09/1.19/1.37
			581/1.44	577/1.43	573/1.42	568/1.41		0.86/0.86	1.18/1.19

***BASED ON 215 KIAS/0.58 MACH.**

Figure C8-12. (Sheet 2)

MAX AB Accelerations — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 150	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	13/1.3/75	17/1.6/95	21/2.1/120	27/2.7/156	39/3.8/221	1.11/1.16/1.08	0.89/0.85/0.92
	300	0.79	25/2.7/148	31/3.4/184	38/4.2/228	48/5.2/286	64/6.8/378	1.11/1.16/1.09	0.89/0.85/0.92
	350	0.91	36/4.2/221	44/5.1/271	54/6.2/331	66/7.7/408	85/9.7/520	1.11/1.16/1.10	0.90/0.86/0.92
	400	1.02	55/7.3/376	68/9.0/461	83/10.9/563	102/13.4/693	130/16.9/877	1.28/1.38/1.31	0.86/0.82/0.88
	450	1.13	100/15.3/783	125/19.0/975	156/23.7/1217	198/30.3/1553	264/40.5/2076		0.77/0.72/0.76
	500	1.25	182/31.5/1678	230/39.9/2130					
	CMBT SPD KIAS/MACH		207/36.5/1957	241/42.1/2251	281/48.6/2592	331/56.5/3000	404/67.8/3581	0.52/0.45/0.41	1.32/1.41/1.57
			503/1.26	501/1.25	498/1.24	495/1.24	491/1.23	0.82/0.84	1.12/1.11

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		+20°C	−20°C
DRAG INDEX = 150	200	0.54	0/0/0	0/0/0*	0/0/0**	0/0/0***		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	39/3.8/221	70/6.7/394	64/6.4/367	48/5.0/278		1.15/1.20/1.13	0.86/0.82/0.89
	300	0.79	64/6.8/378	101/10.4/586	104/11.2/612	102/11.5/613		1.14/1.19/1.12	0.87/0.83/0.90
	350	0.91	85/9.7/520	125/13.8/752	132/15.2/810	137/16.3/851		1.13/1.18/1.12	0.88/0.84/0.90
	400	1.02	130/16.9/877	184/23.3/1224	225/30.2/1553				0.84/0.79/0.85
	450	1.13	264/40.5/2076	387/58.9/3034					0.71/0.66/0.70
	CMBT SPD KIAS/MACH		404/67.8/3581	534/87.4/4602	237/32.2/1657	204/26.9/1377		0.44/0.37/0.34	1.20/1.27/1.41
			491/1.23	487/1.22	402/1.03	390/1.00		0.81/0.83	1.11/1.10

* **BASED ON 201 KIAS/0.54 MACH.**
** **BASED ON 216 KIAS/0.58 MACH.**
*** **BASED ON 233 KIAS/0.63 MACH.**

			TIME (SEC)/DISTANCE (NM)/FUEL (LB)					TEMP EFFECT FACTOR	
	KIAS	MACH	GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	+20°C	−20°C
DRAG INDEX = 200	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	14/1.3/77	17/1.7/98	22/2.1/124	29/2.8/163	41/4.0/232	1.11/1.16/1.09	0.89/0.85/0.92
	300	0.79	26/2.8/154	32/3.5/191	40/4.3/237	51/5.4/299	68/7.2/398	1.11/1.16/1.09	0.89/0.85/0.92
	350	0.91	37/4.4/232	46/5.4/285	56/6.6/348	70/8.1/430	90/10.3/552	1.11/1.16/1.11	0.89/0.85/0.92
	400	1.02	85/12.1/615						
	CMBT SPD KIAS/MACH		89/12.9/652	99/14.0/710	111/15.5/790	123/16.7/856	139/18.1/939	0.95/0.95/0.92	1.04/1.02/1.09
			401/1.02	398/1.02	395/1.01	392/1.01	389/1.00	0.98/0.98	1.02/1.02

Figure C8-12. (Sheet 3)

MAX AB Accelerations — 30,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−44°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DI = 200	200	0.54	0/0/0	0/0/0*	0/0/0**	0/0/0***		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	41/4.0/232	70/6.8/397	64/6.5/368	44/4.7/260		1.16/1.21/1.13	0.85/0.82/0.88
	300	0.79	68/7.2/398	103/10.7/602	107/11.6/632	105/11.8/629		1.15/1.19/1.12	0.87/0.83/0.89
	350	0.91	90/10.3/552	130/14.4/783	138/15.9/848	143/17.2/894		1.14/1.19/1.13	0.87/0.84/0.90
	CMBT SPD KIAS/MACH		139/18.1/939	182/22.7/1192	192/24.4/1269	200/26.0/1330		1.10/1.13/1.08	1.01/1.00/1.06
			389/1.00	387/0.99	384/0.99	381/0.98		0.99/0.99	1.02/1.01

*** BASED ON 202 KIAS/0.55 MACH.**
**** BASED ON 218 KIAS/0.59 MACH.**
***** BASED ON 236 KIAS/0.63 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.54	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	14/1.4/80	18/1.7/101	23/2.2/128	30/2.9/169	43/4.2/246	1.12/1.16/1.09	0.89/0.85/0.92
	300	0.79	27/2.9/159	33/3.6/198	42/4.5/247	53/5.7/313	72/7.6/422	1.12/1.16/1.10	0.89/0.85/0.92
	350	0.91	39/4.6/243	48/5.7/299	59/6.9/367	74/8.6/455	96/11.0/589	1.12/1.17/1.11	0.89/0.85/0.91
	CMBT SPD KIAS/MACH		70/9.5/484	82/11.1/567	97/12.8/659	114/14.9/769	140/17.9/930	1.08/1.11/1.07	0.92/0.88/0.94
			386/0.99	385/0.99	384/0.99	383/0.98	381/0.98	0.99/0.99	1.01/1.01

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 40,000 LB	44,000 LB	48,000 LB	52,000 LB		TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.54	0/0/0	0/0/0*	0/0/0**	0/0/0***		1.00/1.00/1.00	1.00/1.00/1.00
	250	0.67	43/4.2/246	71/6.9/402	64/6.5/367	41/4.4/240		1.17/1.22/1.14	0.85/0.81/0.88
	300	0.79	72/7.6/422	106/11.1/620	110/12.0/652	108/12.3/650		1.15/1.20/1.13	0.86/0.83/0.89
	350	0.91	96/11.0/589	135/15.1/819	145/16.8/892	151/18.3/949		1.15/1.19/1.14	0.87/0.83/0.89
	CMBT SPD KIAS/MACH		140/17.9/930	181/22.2/1171	192/24.1/1253	202/26.1/1334		1.10/1.13/1.09	0.90/0.87/0.92
			381/0.98	379/0.98	376/0.97	373/0.96		0.99/0.99	1.01/1.01

*** BASED ON 204 KIAS/0.55 MACH.**
**** BASED ON 220 KIAS/0.59 MACH.**
***** BASED ON 238 KIAS/0.64 MACH.**

Figure C8-12. (Sheet 4)

MAX AB Accelerations — 40,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	TEMP EFFECT FACTOR −20°C
DRAG INDEX = 0	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	18/2.2/75	25/2.9/100	33/3.9/135	48/5.7/195	93/10.8/368	1.09/1.15/1.11	0.93/0.88/0.89
	300	0.97	33/4.3/146	44/5.6/190	58/7.4/249	79/10.1/339	133/16.4/554	1.11/1.16/1.10	0.91/0.86/0.90
	350	1.10	51/7.1/237	65/9.2/306	85/11.9/396	114/15.9/527	178/23.9/796	1.14/1.20/1.15	0.89/0.85/0.89
	400	1.24	66/10.1/335	86/13.0/431	110/16.6/551	145/21.6/720	217/31.1/1035	1.21/1.29/1.22	0.88/0.84/0.88
	450	1.37	82/13.3/449	105/16.9/574	134/21.5/728	174/27.7/937	252/38.5/1300	1.29/1.39/1.30	0.87/0.83/0.87
	500	1.52	97/16.9/585	124/21.5/744	158/27.1/937	204/34.4/1191	288/46.6/1606	1.39/1.52/1.39	0.85/0.80/0.84
	550	1.67	115/21.4/756	147/27.1/958	185/34.0/1199	237/42.8/1508	327/56.6/1986	1.59/1.80/1.64	0.82/0.76/0.81
	600	1.83	141/28.6/1033	179/36.2/1308	226/45.3/1634	287/56.8/2043	388/73.7/2640		0.75/0.68/0.73
	LIMIT SPD KIAS/MACH		237/58.0/2106	289/69.7/2532	347/82.2/2989	418/96.6/3514	525/115.0/4169	1.12/1.06/0.94	0.58/0.49/0.55
			639/1.96	636/1.95	634/1.94	631/1.93	627/1.92	0.89/0.88	1.05/1.05

*** BASED ON 201 KIAS/0.67 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	TEMP EFFECT FACTOR −20°C
DRAG INDEX = 50	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	19/2.3/78	26/3.1/105	35/4.2/143	52/6.1/210	95/11.1/378	1.10/1.15/1.12	0.93/0.88/0.89
	300	0.97	36/4.6/156	47/6.0/204	62/8.0/269	87/11.1/372	141/17.6/593	1.11/1.16/1.11	0.90/0.86/0.89
	350	1.10	58/8.3/276	76/10.9/360	100/14.3/472	138/19.5/646	213/29.5/977	1.19/1.26/1.20	0.88/0.83/0.88
	400	1.24	80/12.3/409	103/16.0/530	135/20.8/689	183/27.8/923	271/40.2/1335	1.31/1.41/1.33	0.86/0.82/0.86
	450	1.37	102/17.0/579	132/22.0/746	171/28.3/962	228/37.3/1266	329/52.3/1770	1.56/1.73/1.60	0.84/0.79/0.83
	500	1.52	129/23.1/806	166/29.7/1036	213/38.0/1325	281/49.5/1721	394/67.4/2337	2.32/2.75/2.53	0.80/0.75/0.78
	550	1.67	166/32.6/1165	213/41.8/1496	274/53.4/1908	357/68.8/2457	490/92.0/3269		0.72/0.65/0.69
	CMBT SPD KIAS/MACH		288/66.9/2483	353/80.7/2990	427/96.0/3541	518/113.4/4166	658/138.0/5034	1.24/1.18/1.02	0.91/0.95/1.08
			589/1.79	587/1.79	584/1.78	580/1.76	576/1.75	0.86/0.86	1.13/1.14

*** BASED ON 203 KIAS/0.68 MACH.**

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 20,000 LB	24,000 LB	28,000 LB	32,000 LB	36,000 LB	TEMP EFFECT FACTOR +20°C	TEMP EFFECT FACTOR −20°C
DRAG INDEX = 100	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0*	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	20/2.4/82	27/3.2/110	37/4.4/152	57/6.6/227	96/11.2/383	1.10/1.15/1.12	0.92/0.88/0.89
	300	0.97	38/5.0/168	50/6.5/220	68/8.7/294	96/12.3/414	150/19.0/641	1.12/1.17/1.12	0.90/0.85/0.89
	350	1.10	72/10.5/346	95/14.0/461	130/19.1/629	192/28.1/926	325/47.9/1576	1.34/1.43/1.36	0.84/0.79/0.84
	400	1.24	105/16.6/551	139/22.0/730	188/29.8/986	270/42.7/1413	435/68.4/2260	1.80/2.00/1.89	0.81/0.77/0.81
	450	1.37	149/26.0/888	198/34.4/1176	267/46.3/1582	379/65.4/2232	589/100.5/3418		0.76/0.71/0.74
	500	1.52	238/46.7/1665	323/63.5/2267	450/89.1/3188				0.58/0.51/0.53
	CMBT SPD KIAS/MACH		360/76.8/2801	434/90.9/3299	533/109.3/3951	664/132.1/4735	869/165.0/5836	0.74/0.65/0.56	0.90/0.95/1.09
			518/1.57	513/1.56	507/1.54	500/1.52	491/1.49	0.80/0.81	1.17/1.18

*** BASED ON 205 KIAS/0.69 MACH.**

Figure C8-13. (Sheet 1)

MAX AB Accelerations — 40,000 Feet

DATA BASIS ESTIMATED **CONDITIONS:** **ENGINE F100-PW-229/CFT**

• STANDARD DAY TEMPERATURE (−56°C)

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 150	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	29/3.4/116	40/4.7/162	62/7.2/248	95/11.3/387	83/10.3/359	1.11/1.16/1.13	0.92/0.88/0.89
	300	0.97	55/7.2/241	75/9.7/325	109/14.0/470	165/21.3/717		1.14/1.19/1.14	0.89/0.84/0.88
	350	1.10	160/24.7/807	272/42.5/1386					0.61/0.56/0.60
	400	1.24	265/44.3/1463	430/72.1/2380					0.59/0.55/0.58
	CMBT SPD KIAS/MACH		370/65.4/2207	504/86.9/2895	151/20.6/686	198/26.4/884	204/27.9/936	0.27/0.23/0.21	1.47/1.62/1.84
			416/1.28	409/1.26	313/1.00	306/0.98	299/0.96	0.77/0.80	1.17/1.15

*BASED ON 208 KIAS/0.70 MACH.
**BASED ON 226 KIAS/0.75 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 200	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	30/3.6/123	43/5.1/173	68/8.0/272	97/11.5/396	85/10.7/369	1.12/1.17/1.14	0.92/0.87/0.88
	300	0.97	61/8.0/269	84/11.0/370	128/16.6/558			1.16/1.23/1.16	0.87/0.83/0.86
	CMBT SPD KIAS/MACH		93/13.1/435	116/15.9/529	151/20.2/674	193/25.5/856	199/26.8/902	1.07/1.11/1.06	0.92/0.89/0.94
			312/1.00	309/0.99	304/0.98	298/0.96	290/0.94	0.99/0.99	1.01/1.01

*BASED ON 210 KIAS/0.70 MACH.
**BASED ON 229 KIAS/0.76 MACH.

	KIAS	MACH	TIME (SEC)/DISTANCE (NM)/FUEL (LB) GW 24,000 LB	28,000 LB	32,000 LB	36,000 LB	40,000 LB	TEMP EFFECT FACTOR +20°C	−20°C
DI = 250	200	0.67	0/0/0	0/0/0	0/0/0	0/0/0*	0/0/0**	1.00/1.00/1.00	1.00/1.00/1.00
	250	0.82	32/3.8/131	46/5.4/186	75/8.8/302	100/12.1/416	78/9.9/340	1.12/1.17/1.14	0.91/0.87/0.88
	300	0.97	70/9.3/311	101/13.5/452					0.83/0.78/0.82
	CMBT SPD KIAS/MACH		91/12.6/418	114/15.4/514	156/20.6/690	193/25.3/853	196/26.4/888	1.09/1.13/1.07	0.92/0.88/0.93
			305/0.98	302/0.97	298/0.96	292/0.94	284/0.92	0.99/0.99	1.01/1.01

*BASED ON 212 KIAS/0.71 MACH.
**BASED ON 234 KIAS/0.78 MACH.

Figure C8-13. (Sheet 2)

Turn Performance — Sea Level

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

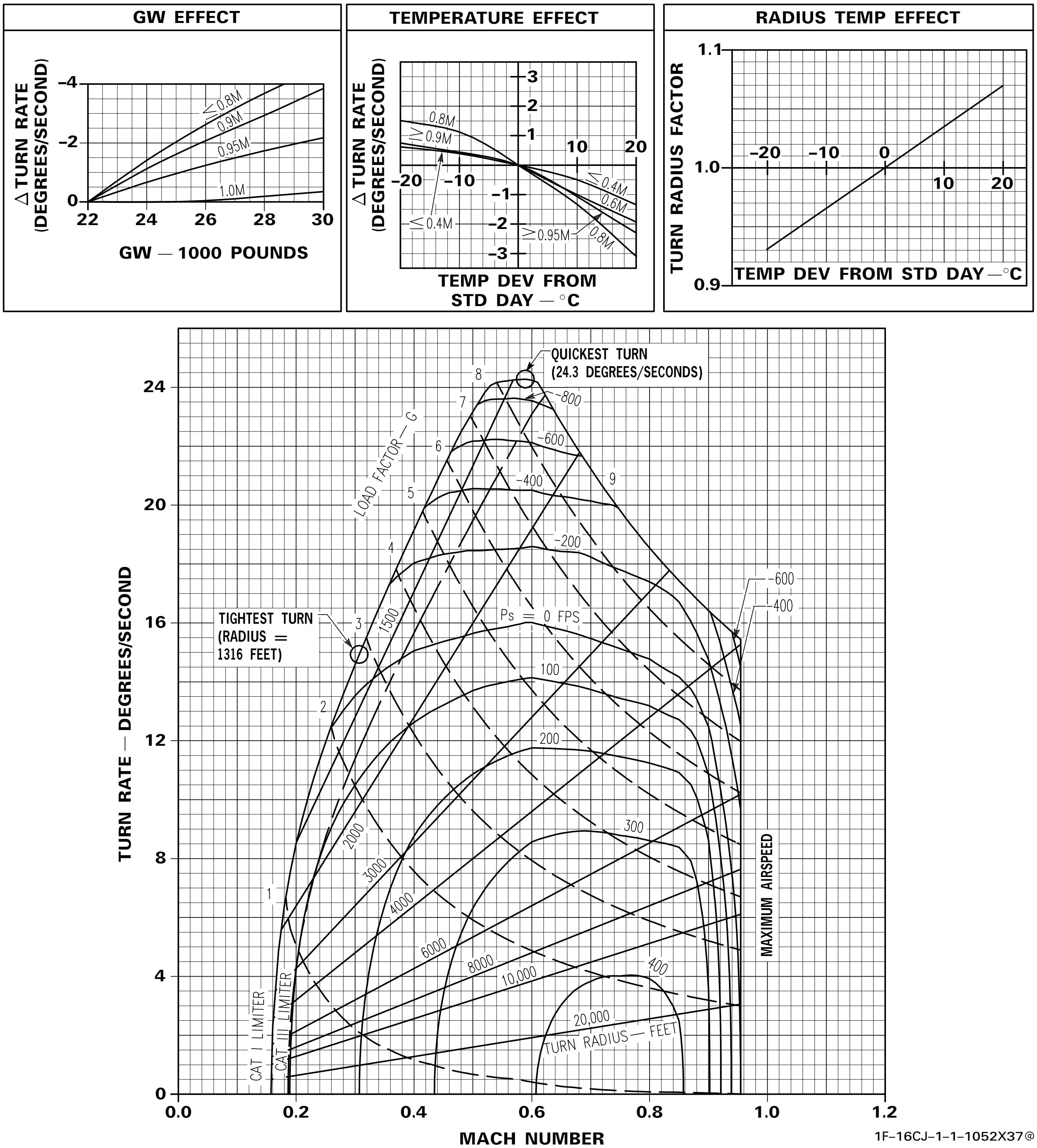


Figure C8-14.

Turn Performance — 5000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- **DRAG INDEX = 0**
- **GW = 22,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MIL**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

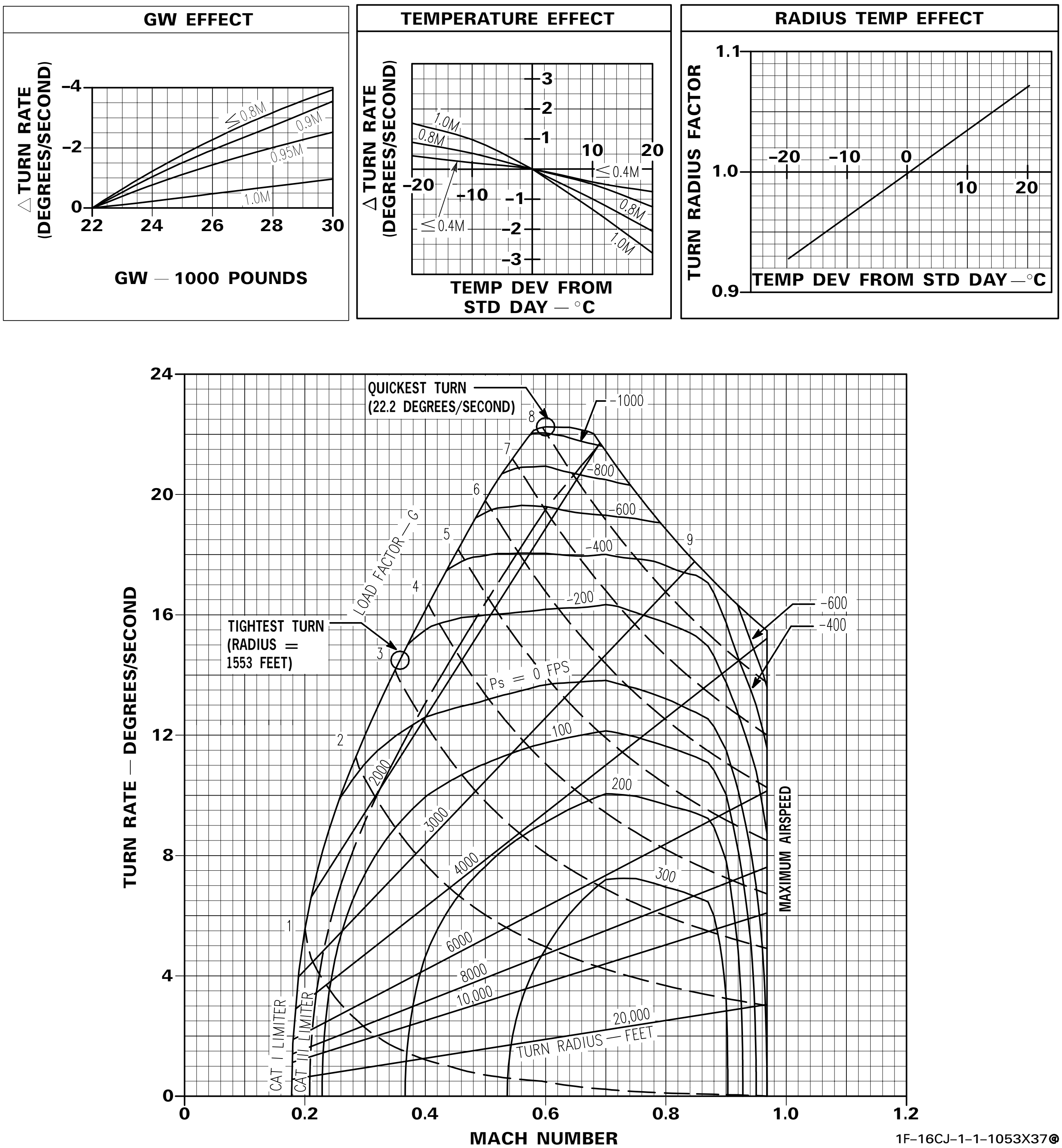


Figure C8-15.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

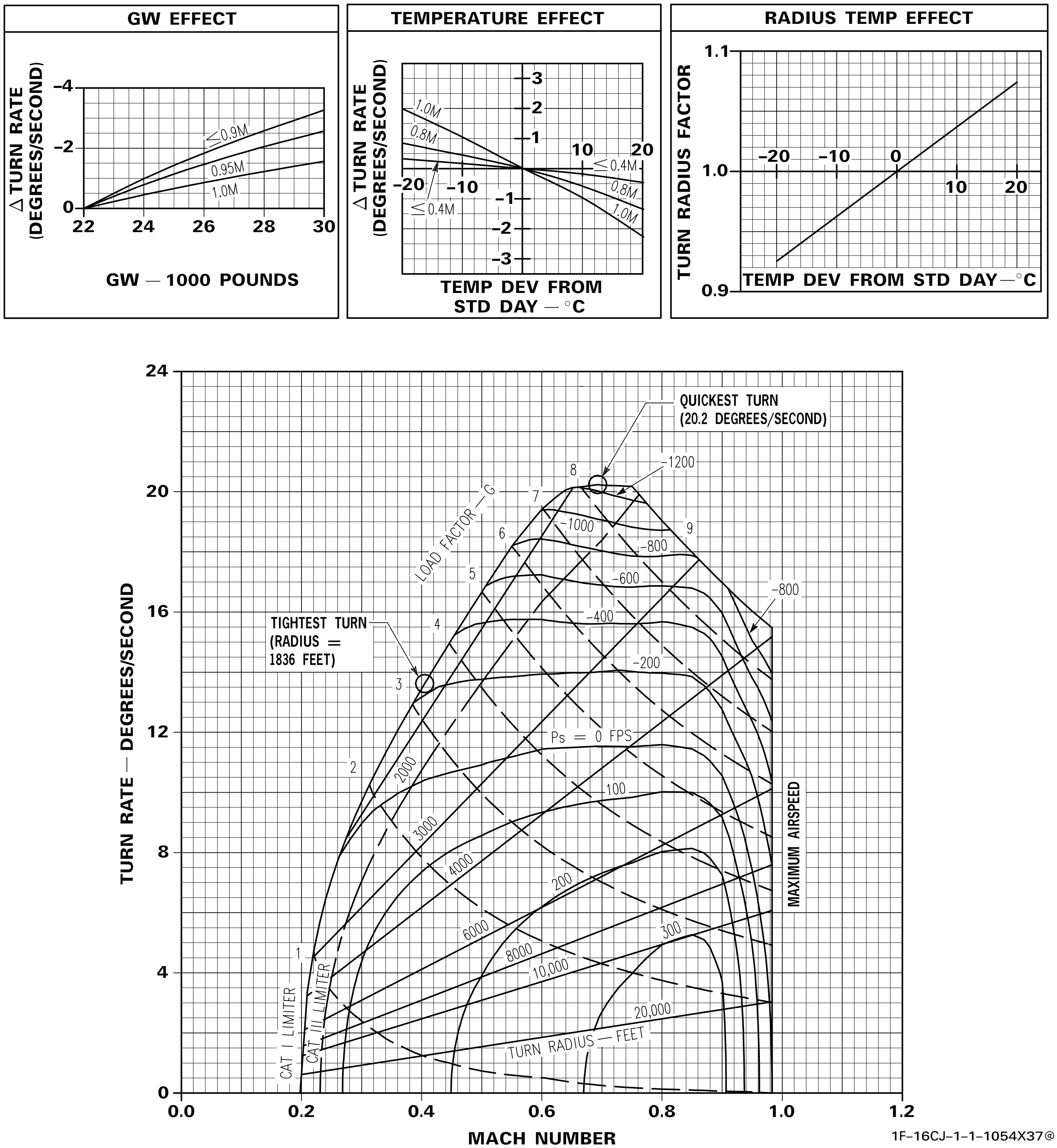


Figure C8-16.

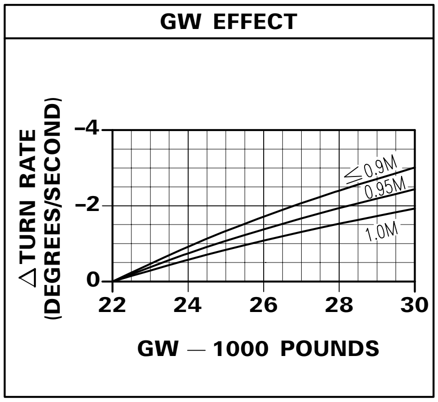
Turn Performance — 15,000 Feet

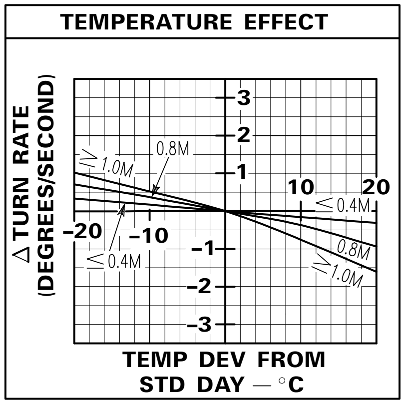
DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

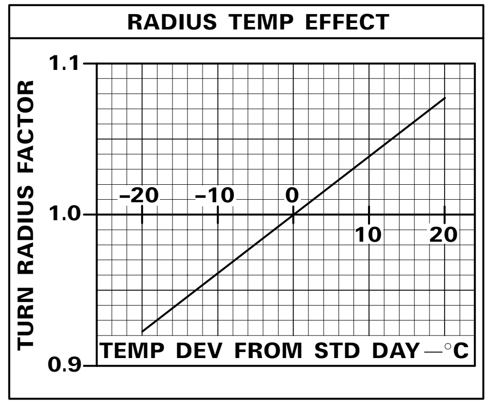
CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







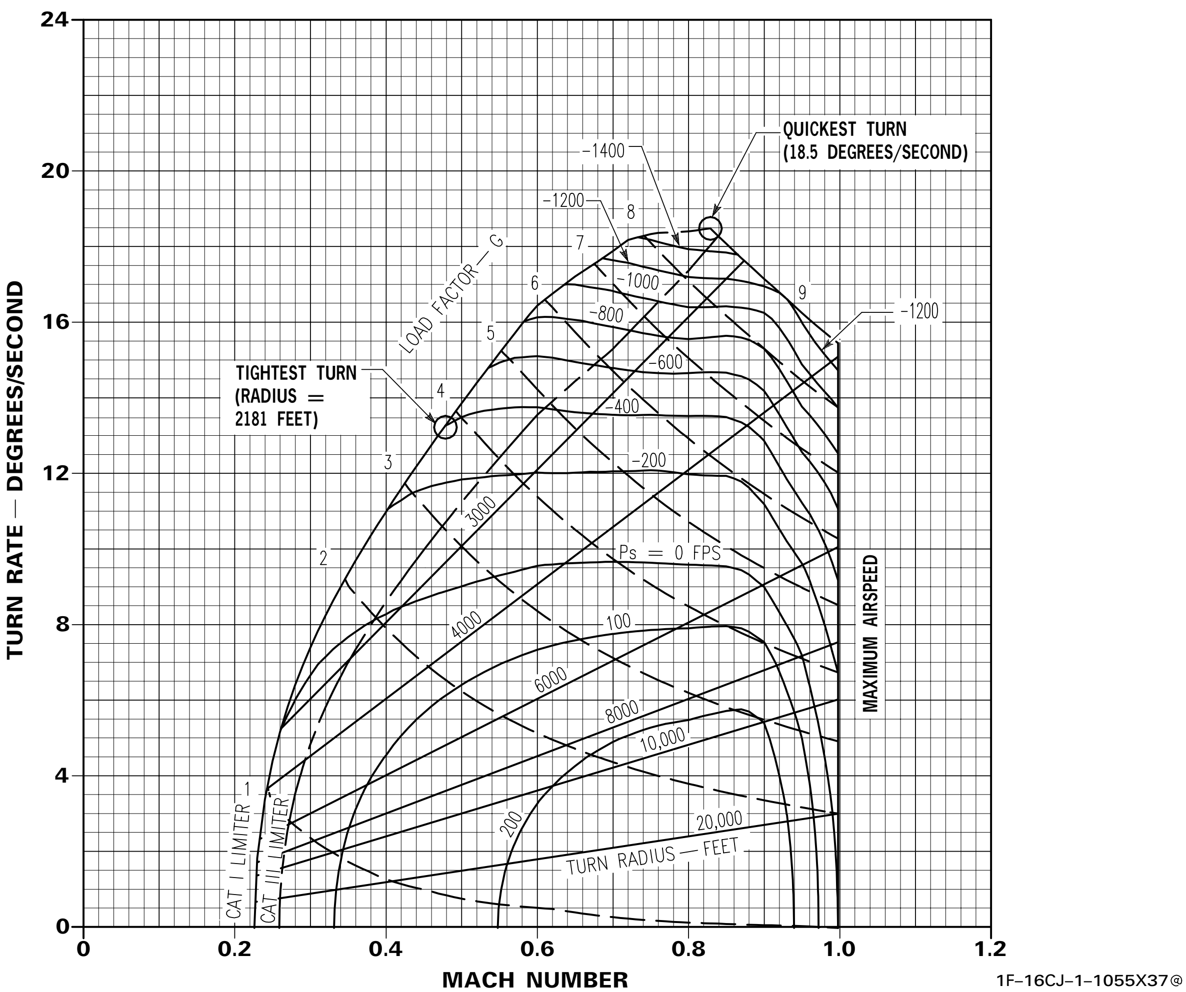


Figure C8-17.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

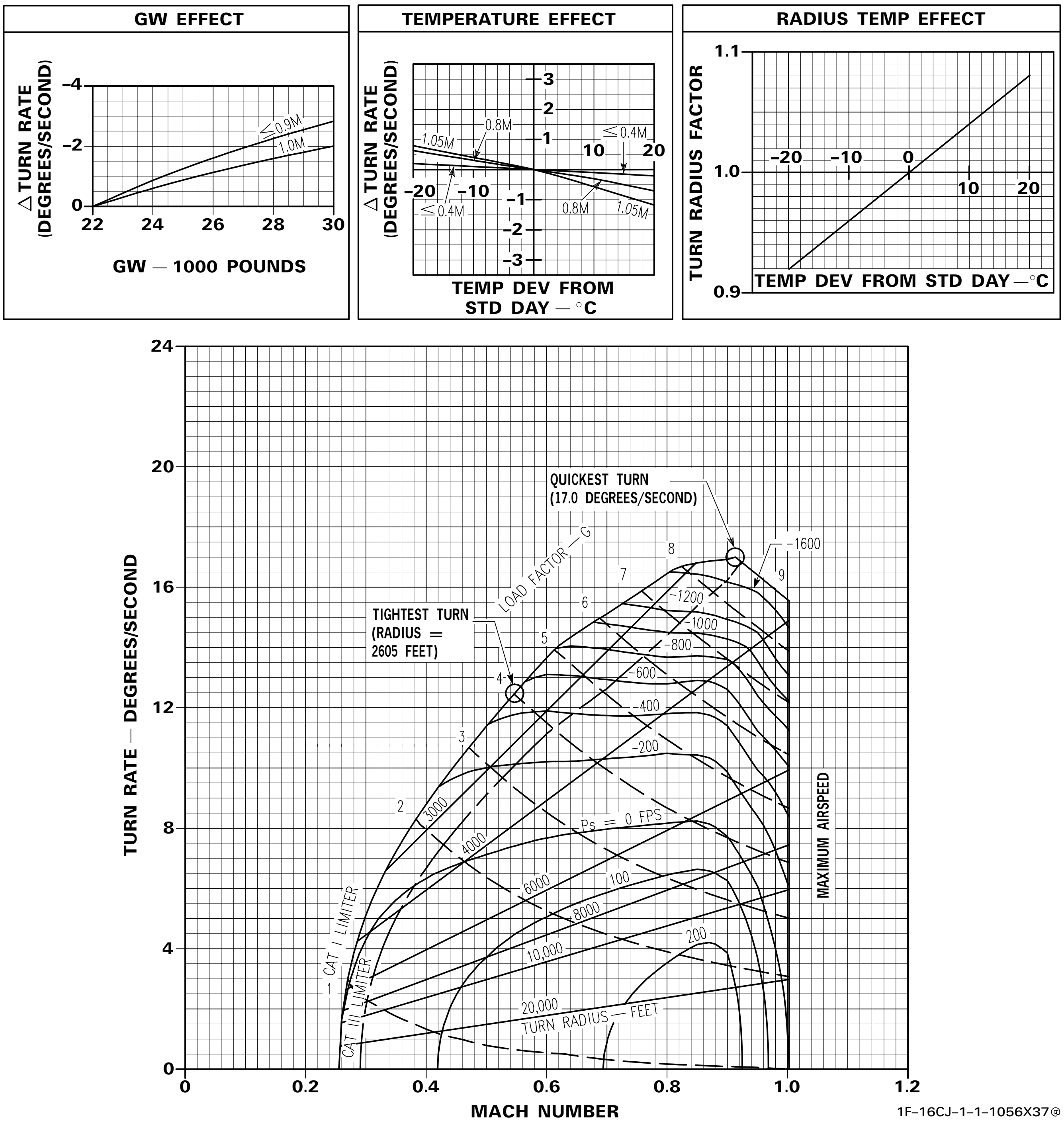


Figure C8-18.

Turn Performance — 25,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

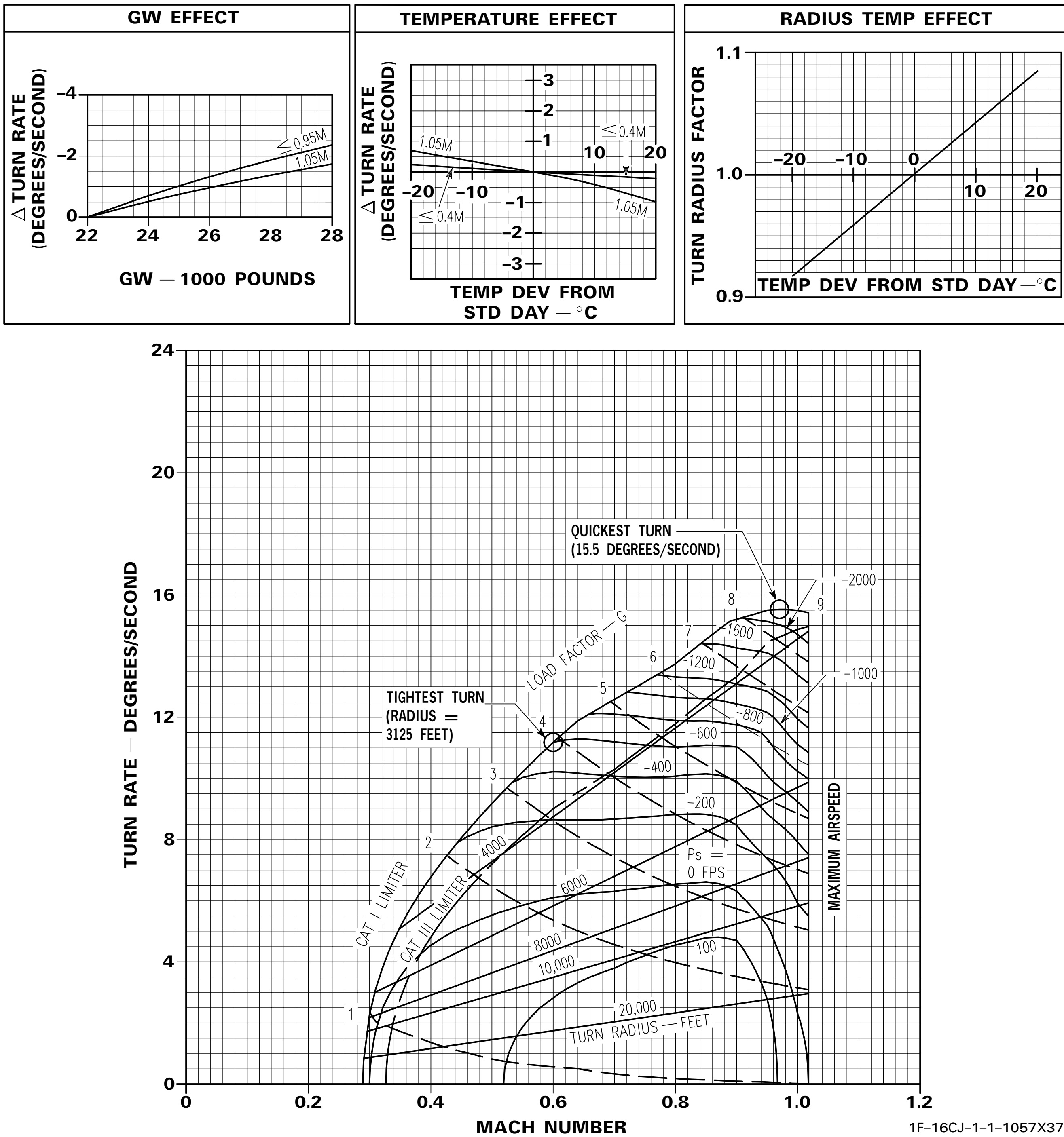


Figure C8-19.

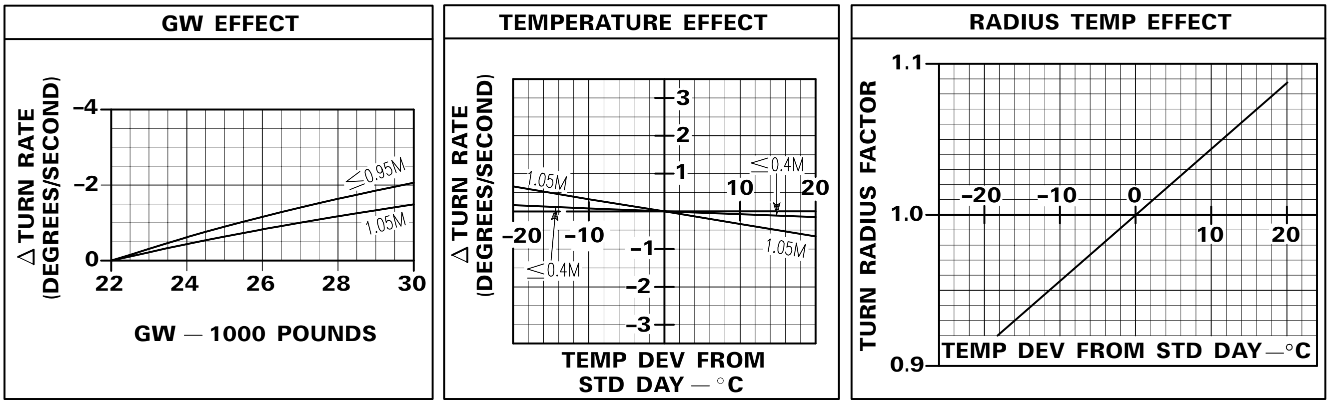
Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.



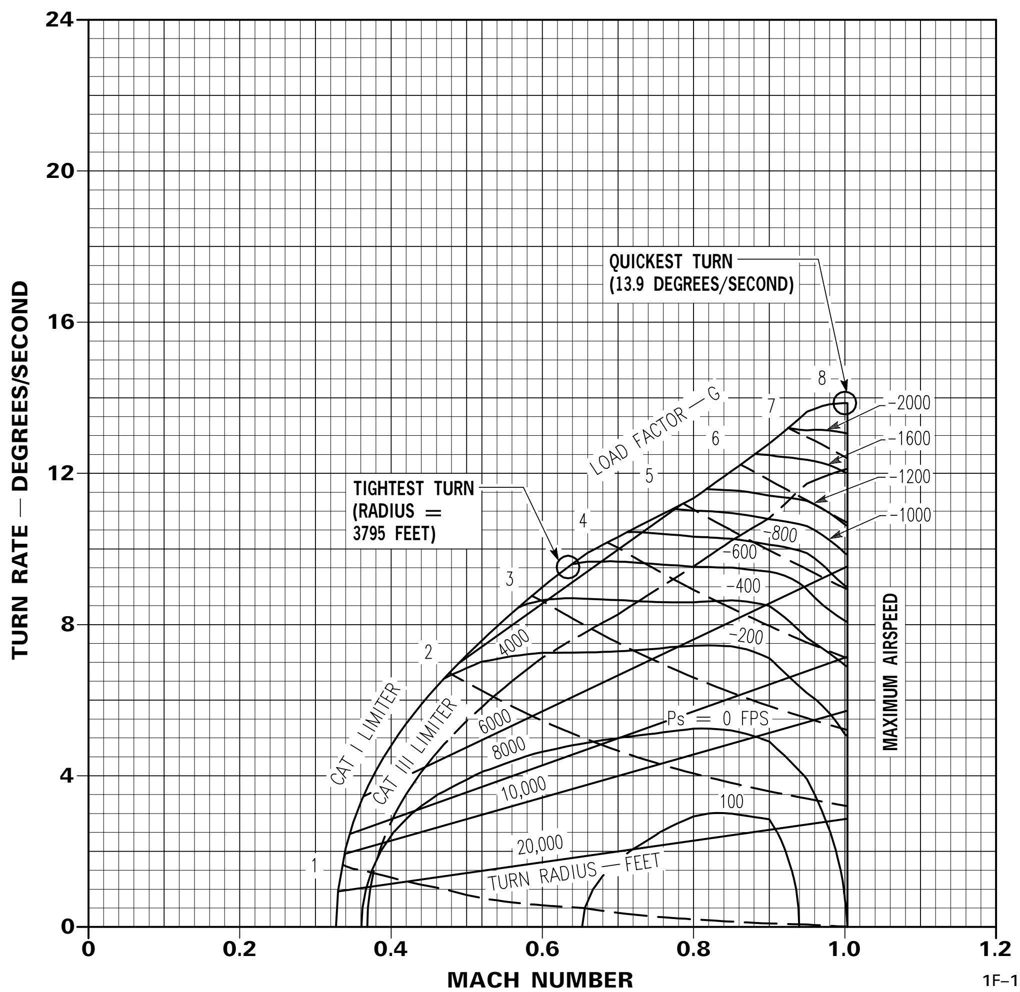


Figure C8-20.

Turn Performance — Sea Level

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

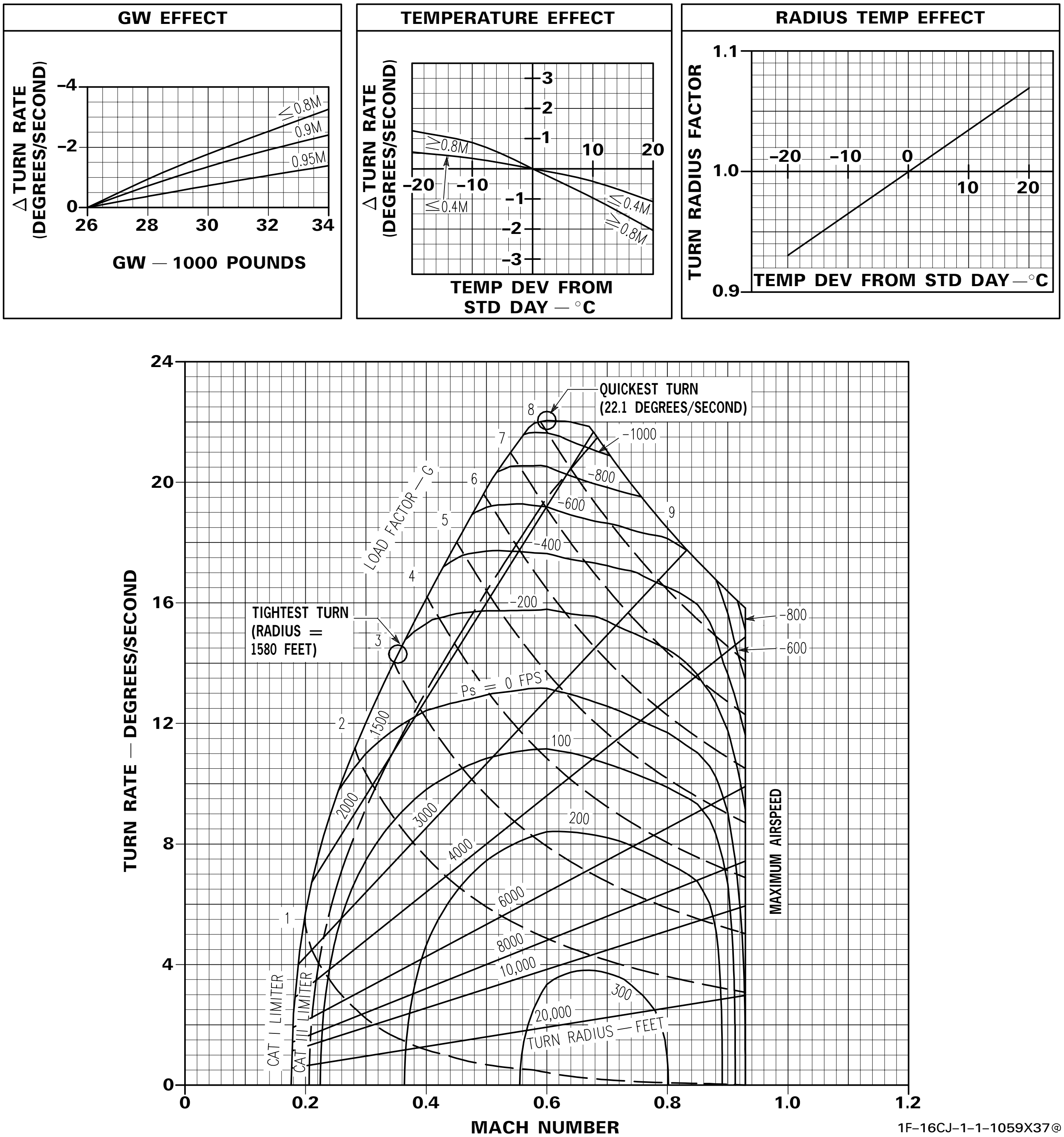


Figure C8-21.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

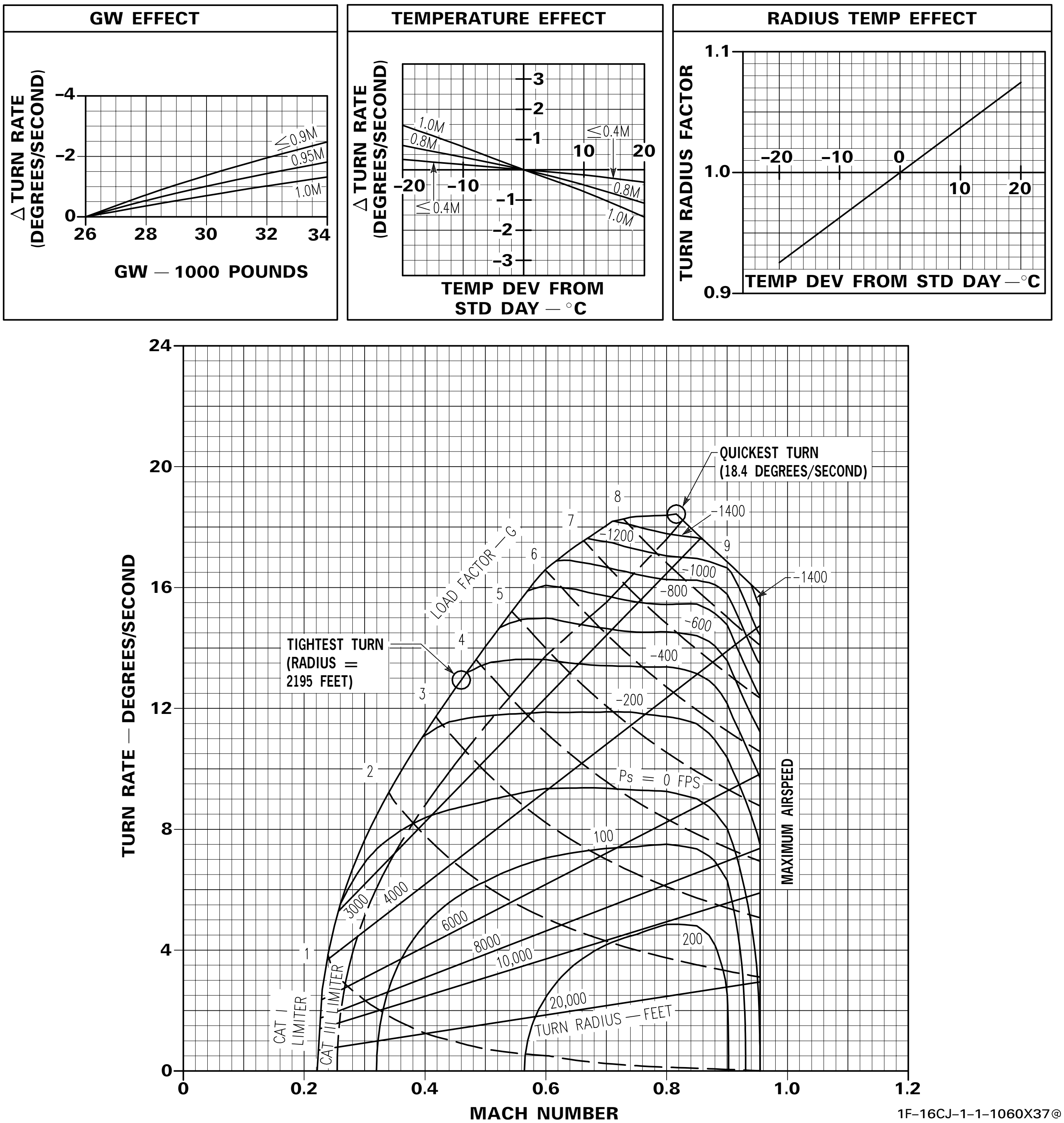


Figure C8-22.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

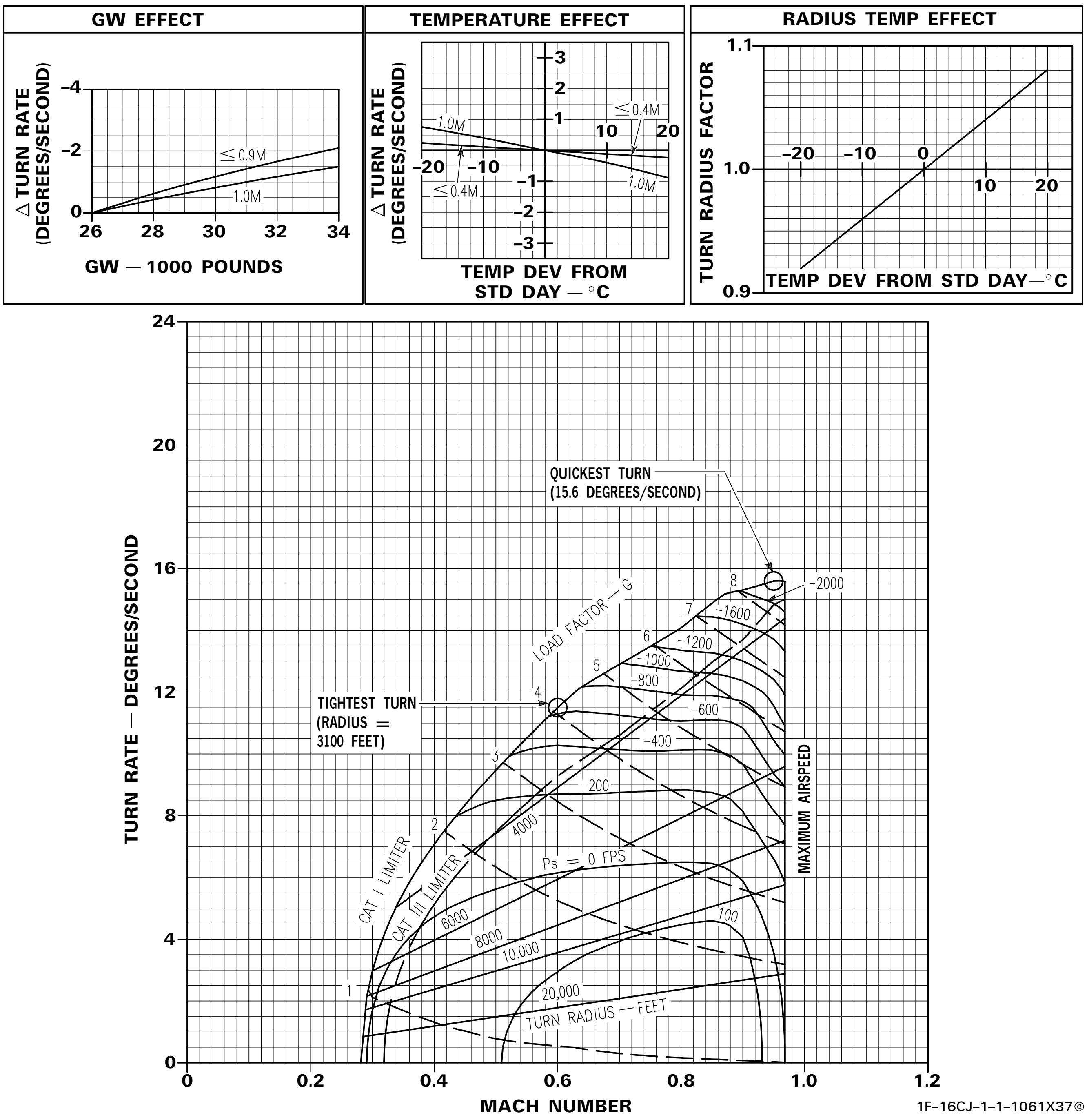


Figure C8-23.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

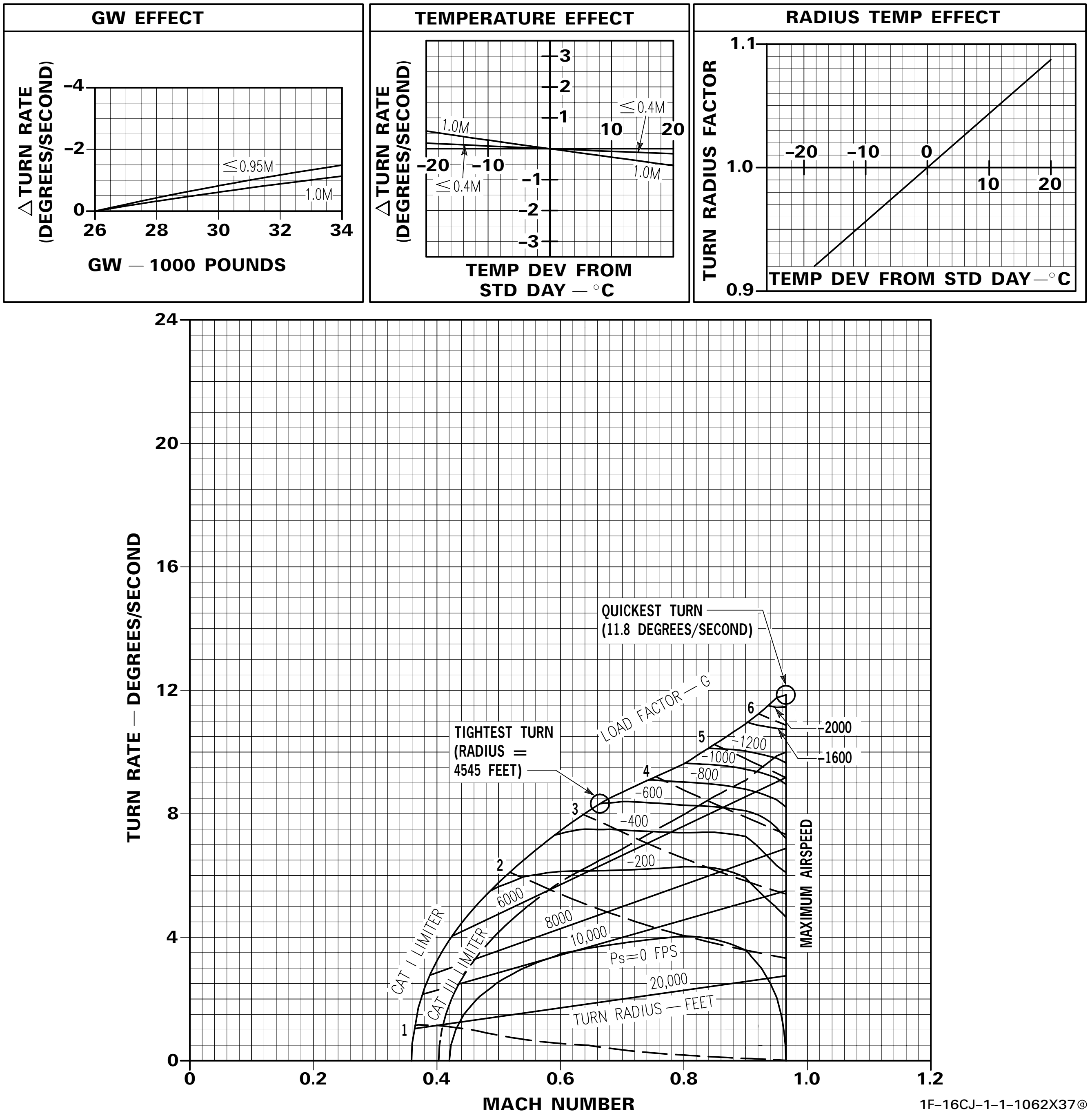


Figure C8-24.

Turn Performance — Sea Level

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

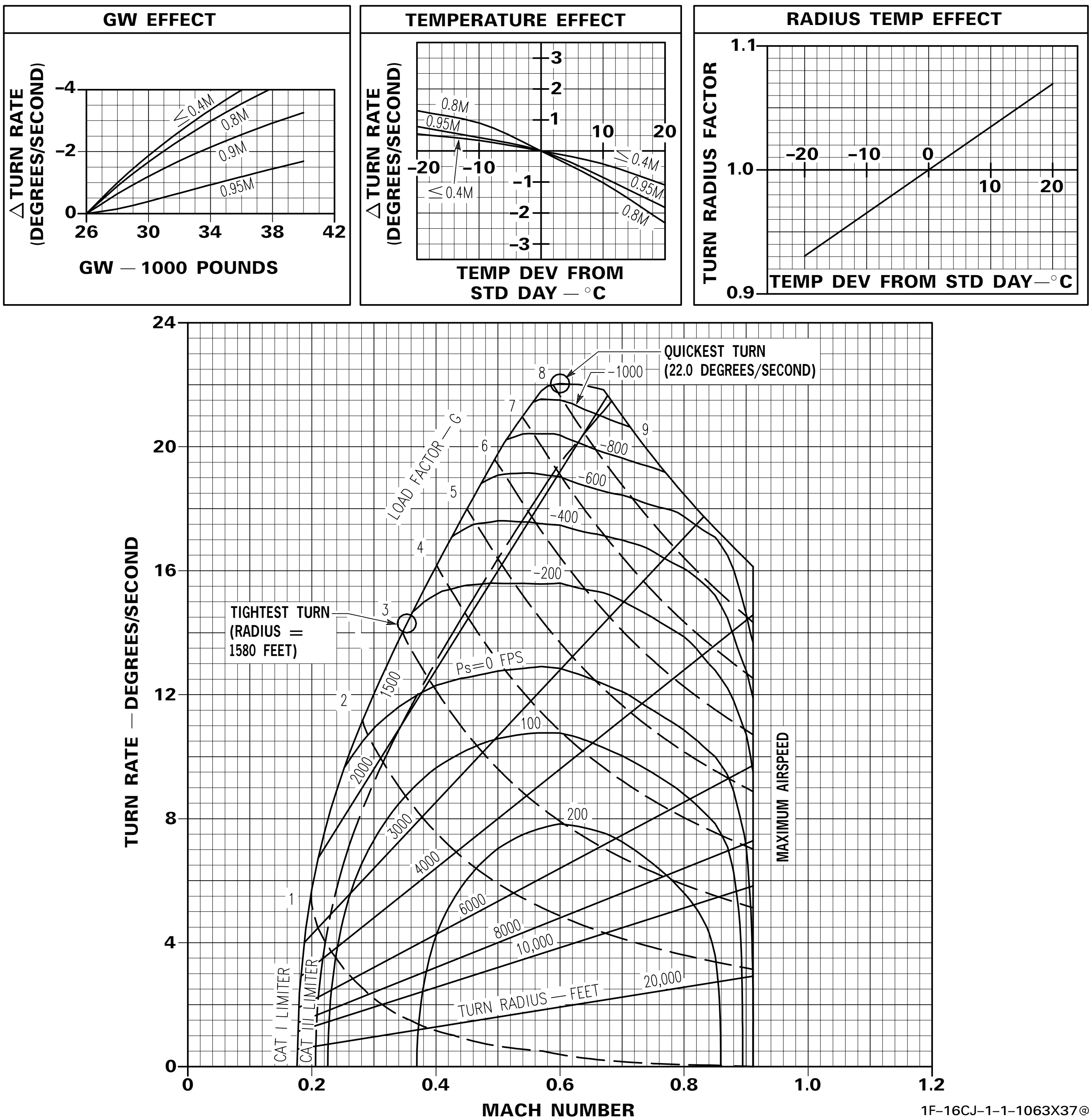


Figure C8-25.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

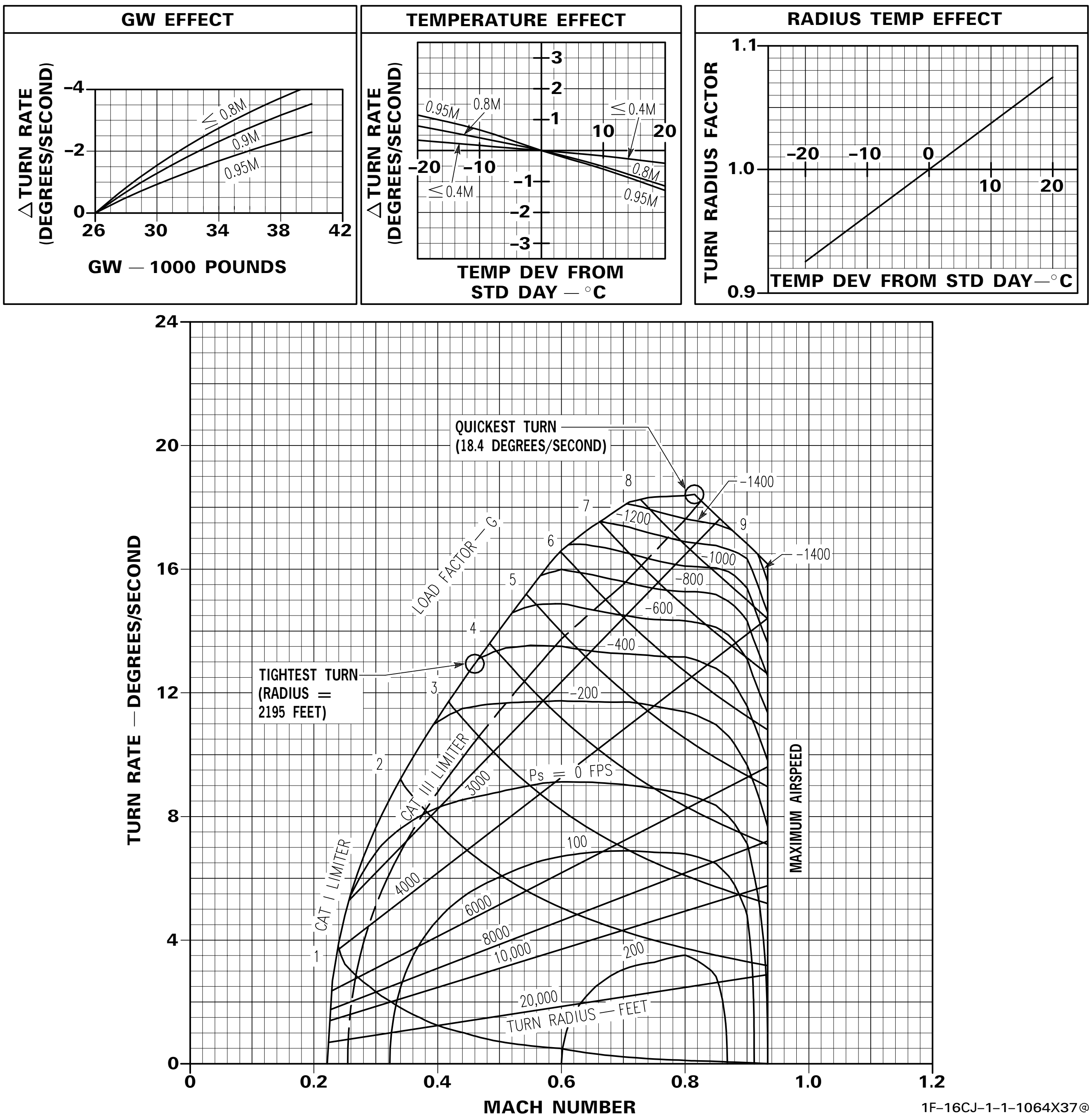


Figure C8-26.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

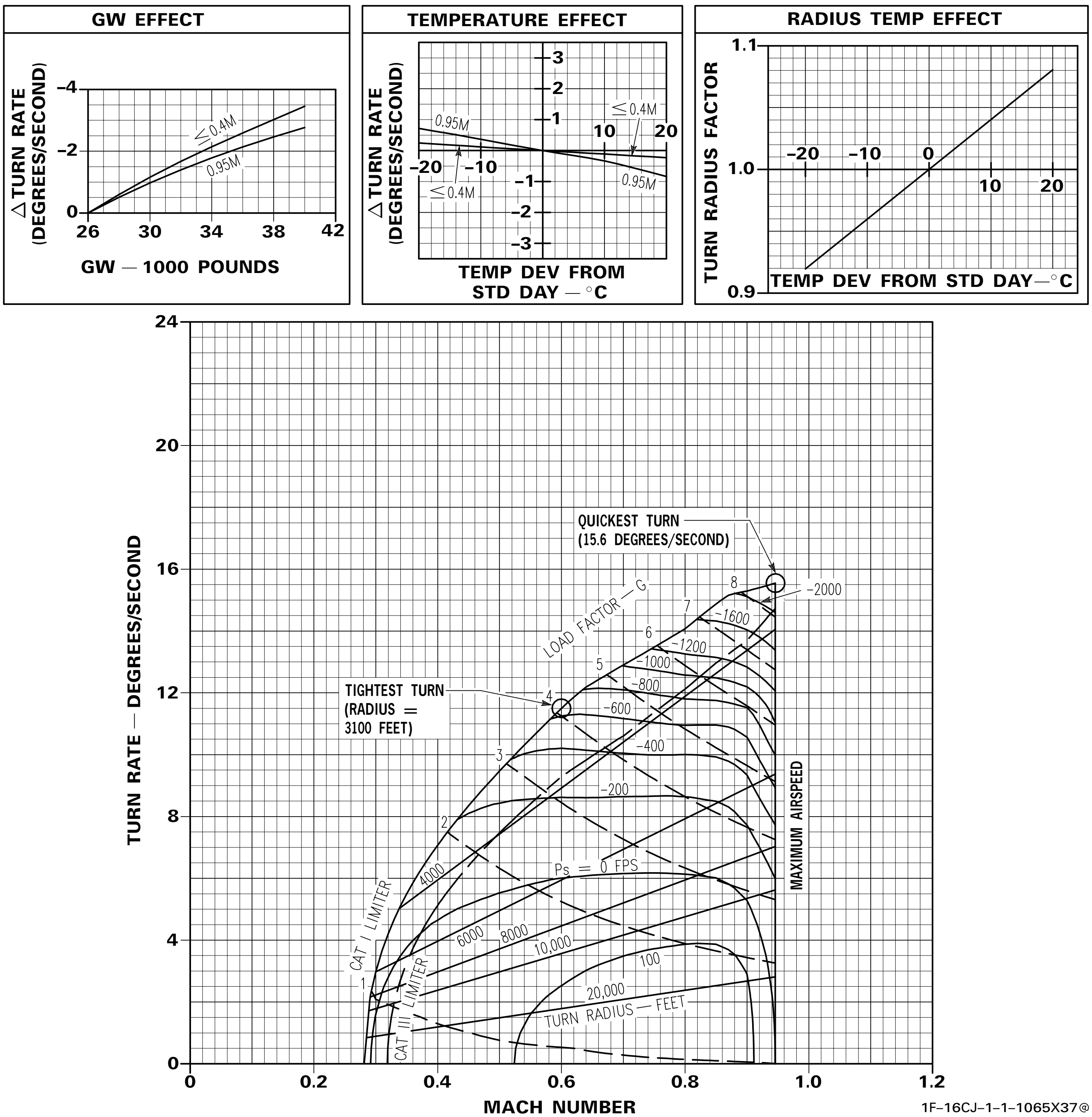


Figure C8-27.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

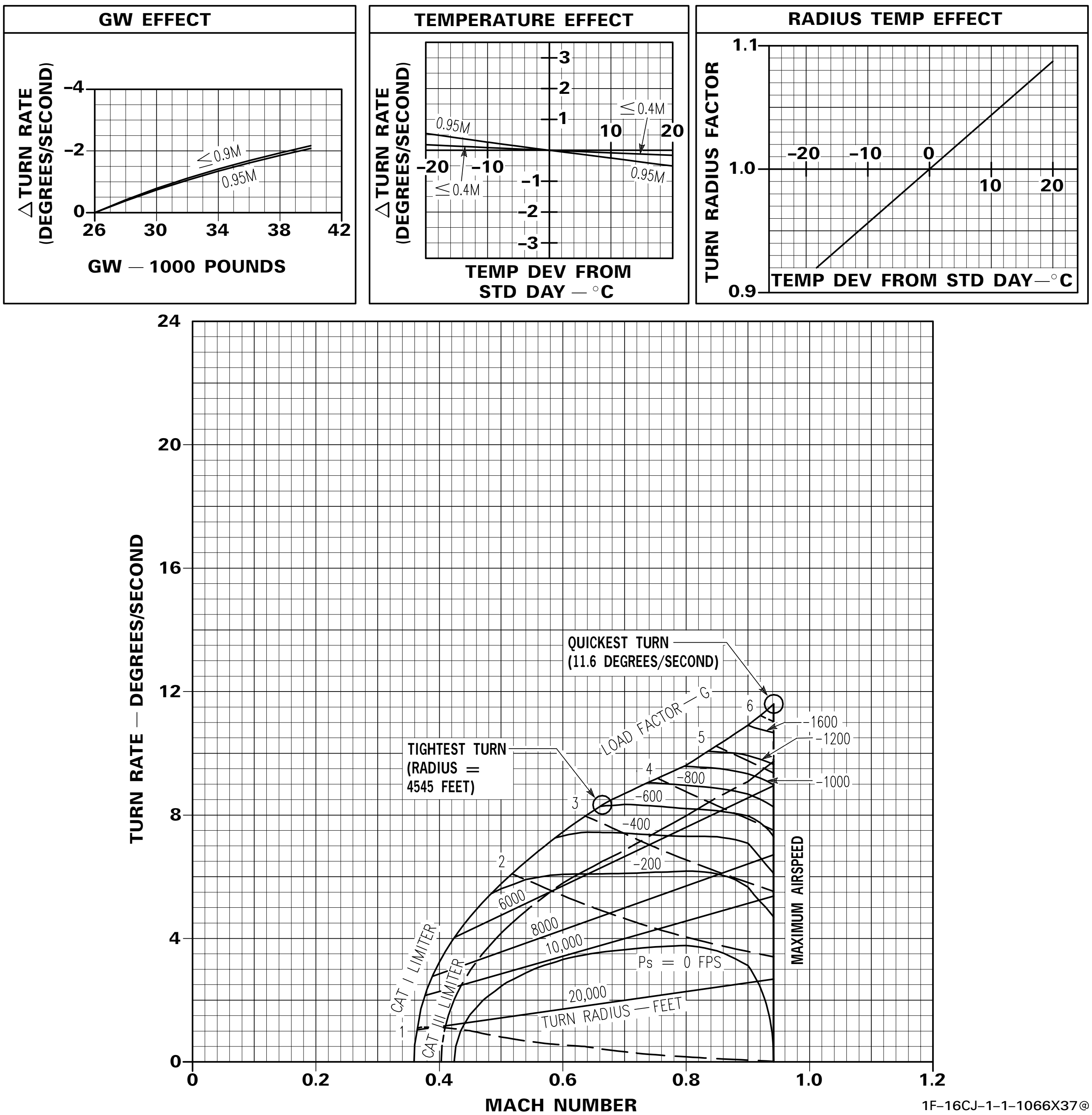


Figure C8-28.

Turn Performance — Sea Level

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

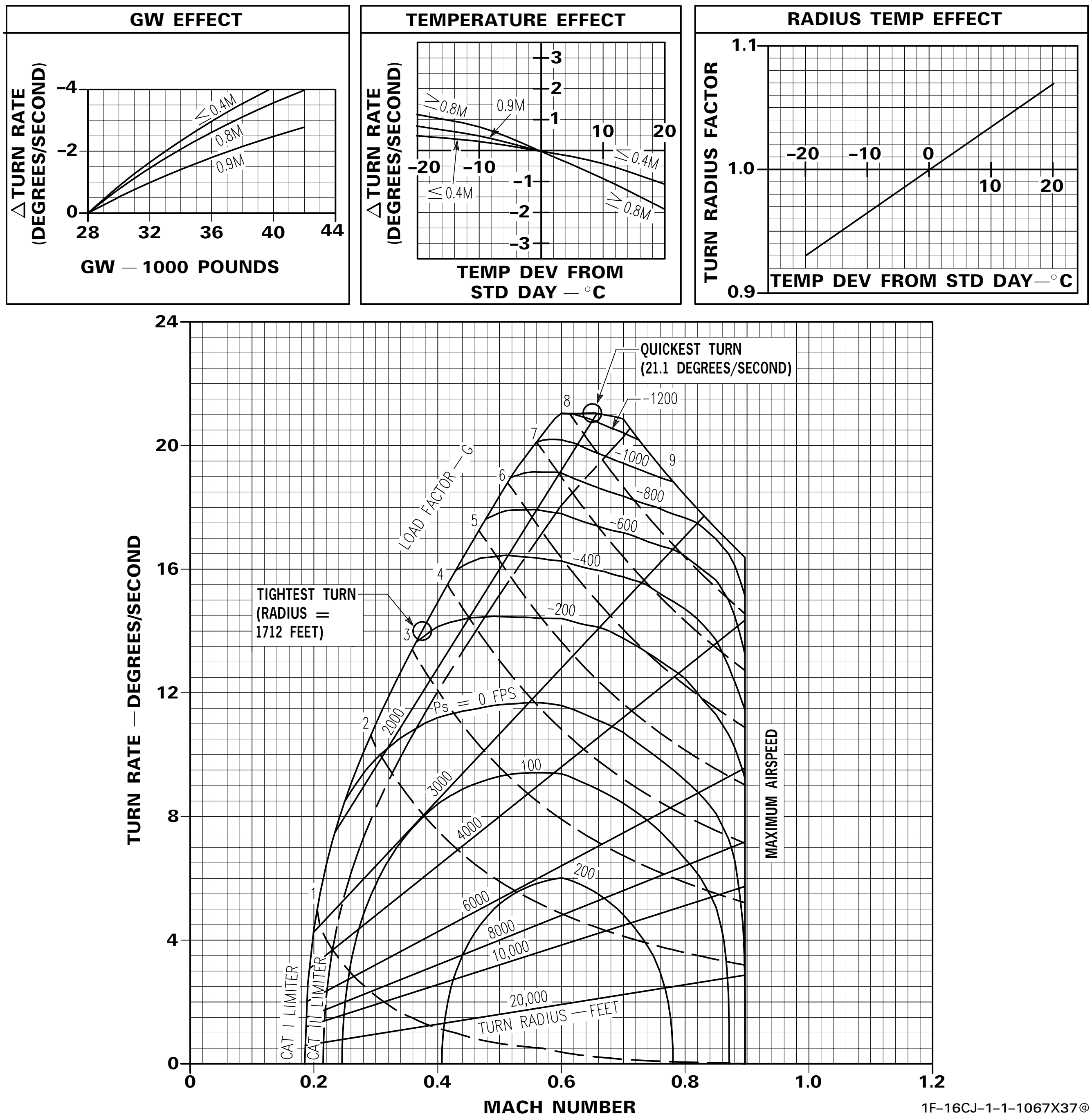


Figure C8-29.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

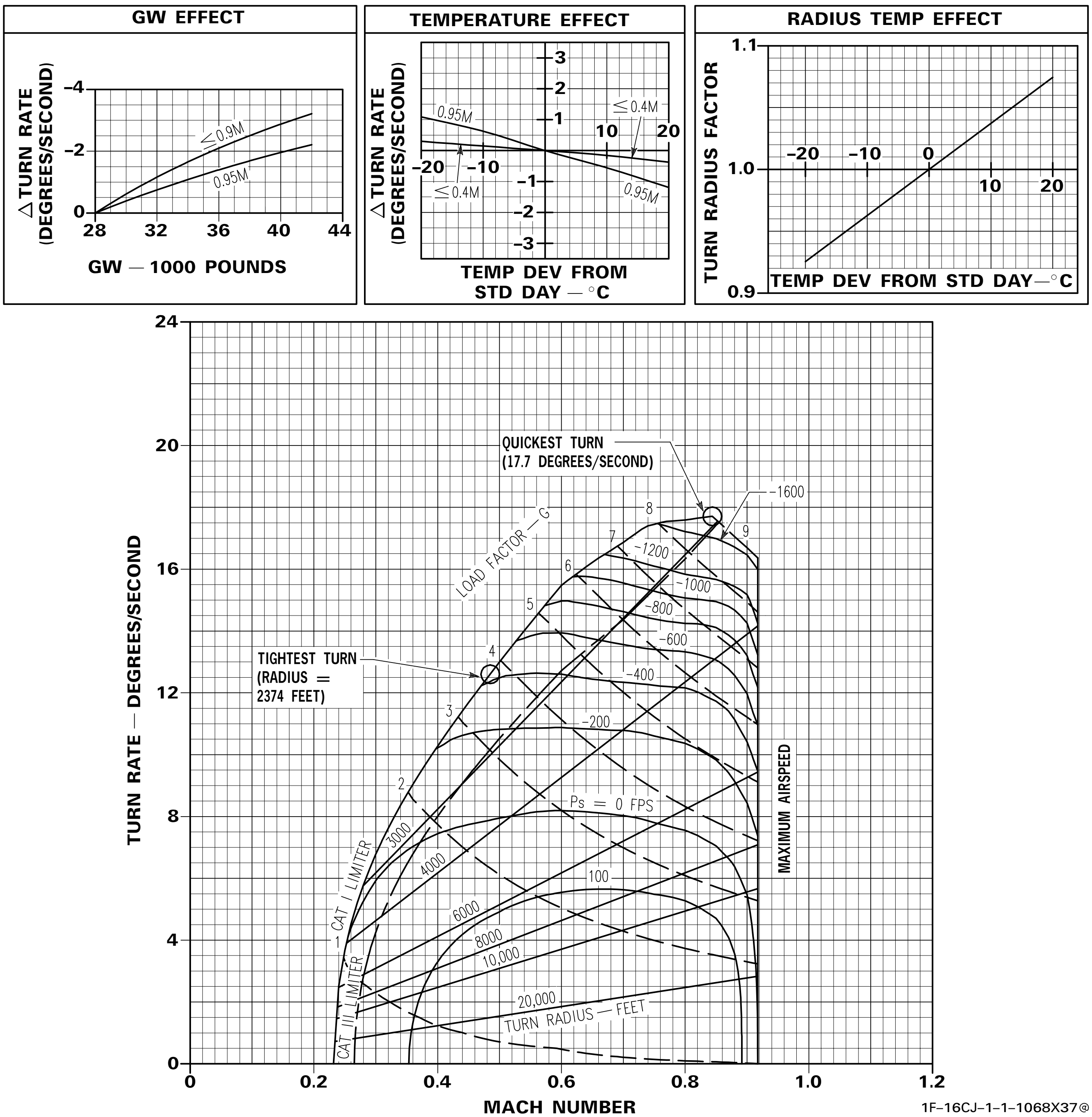


Figure C8-30.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

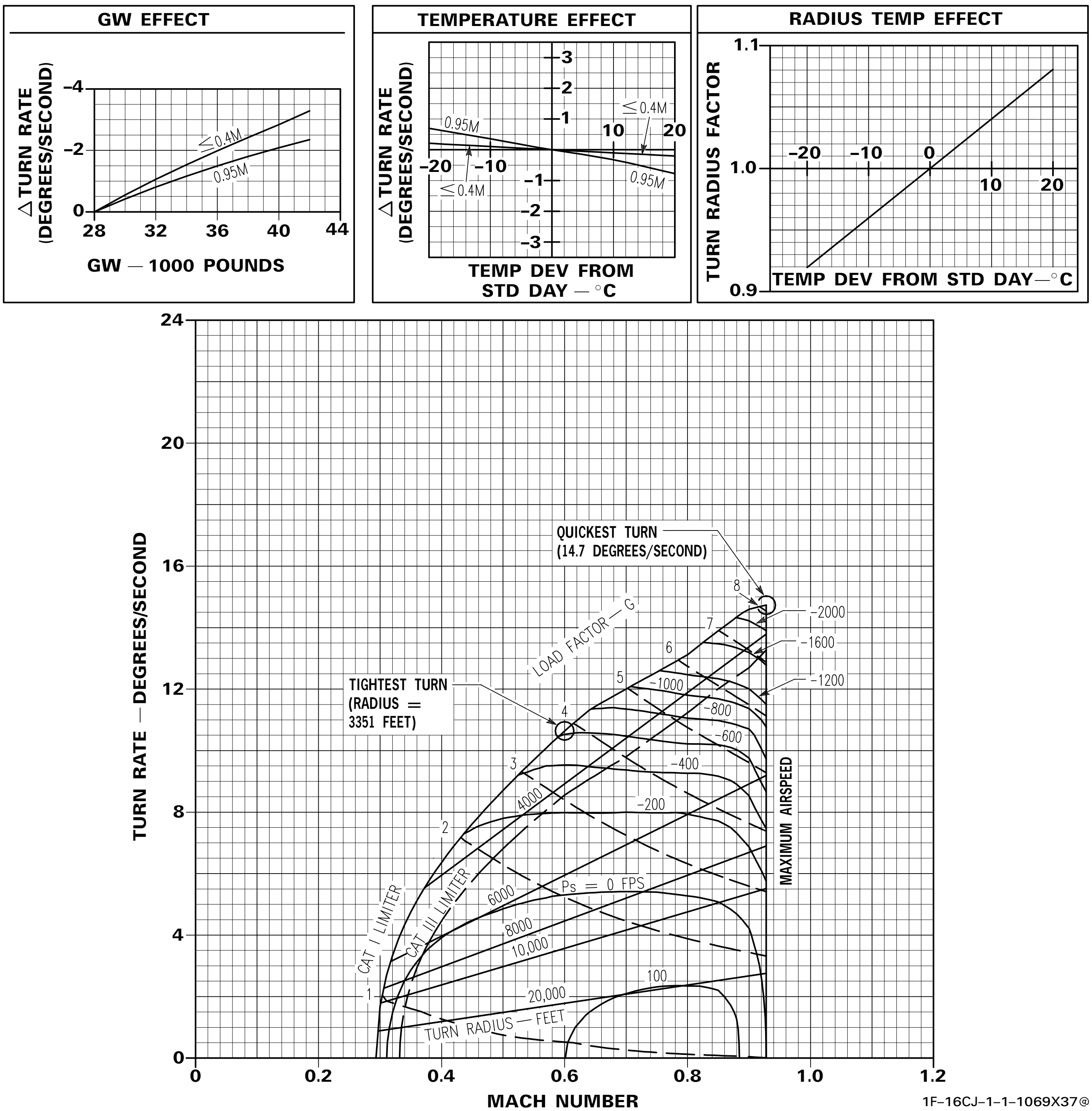


Figure C8-31.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

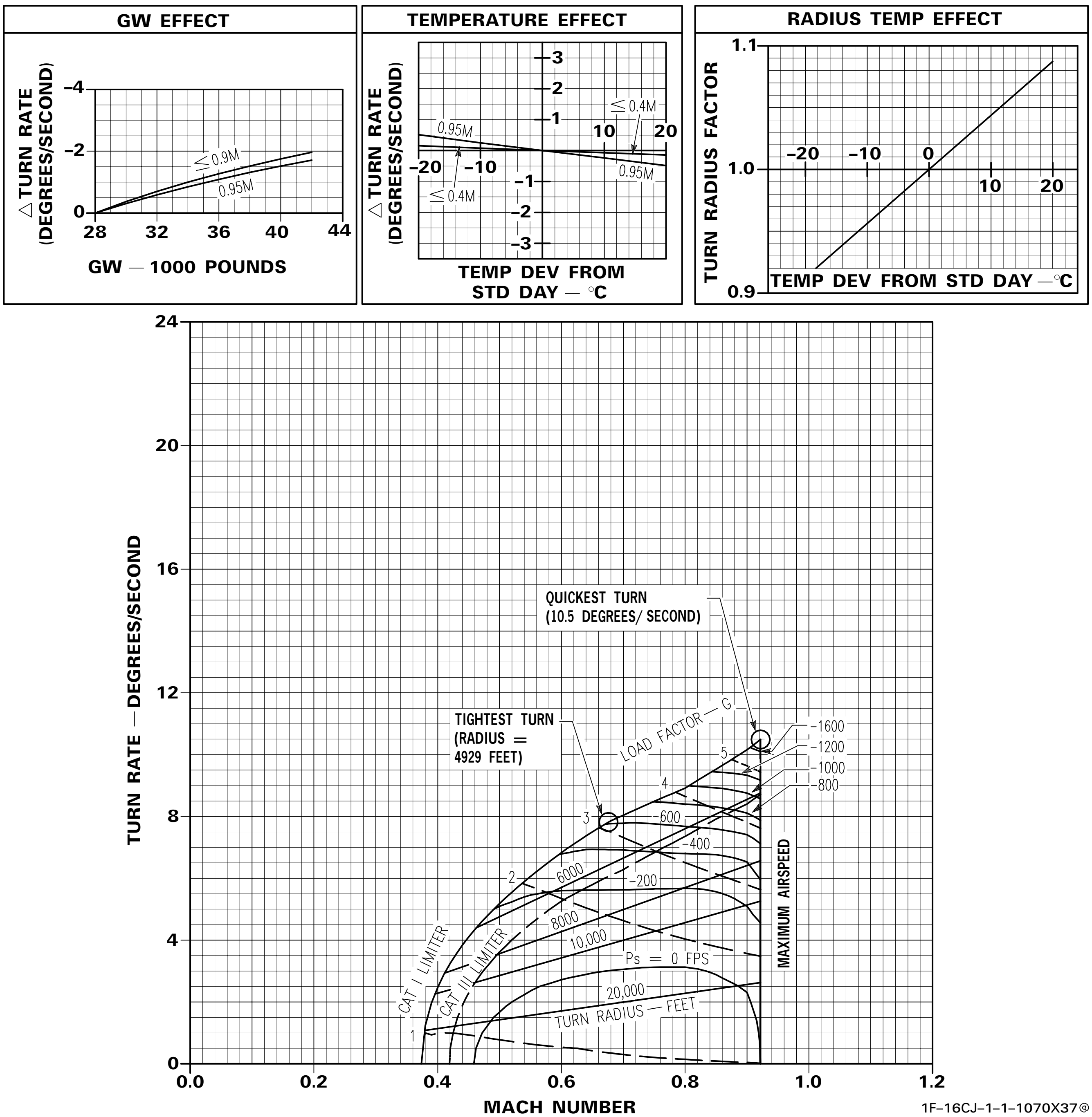


Figure C8-32.

Turn Performance — Sea Level

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

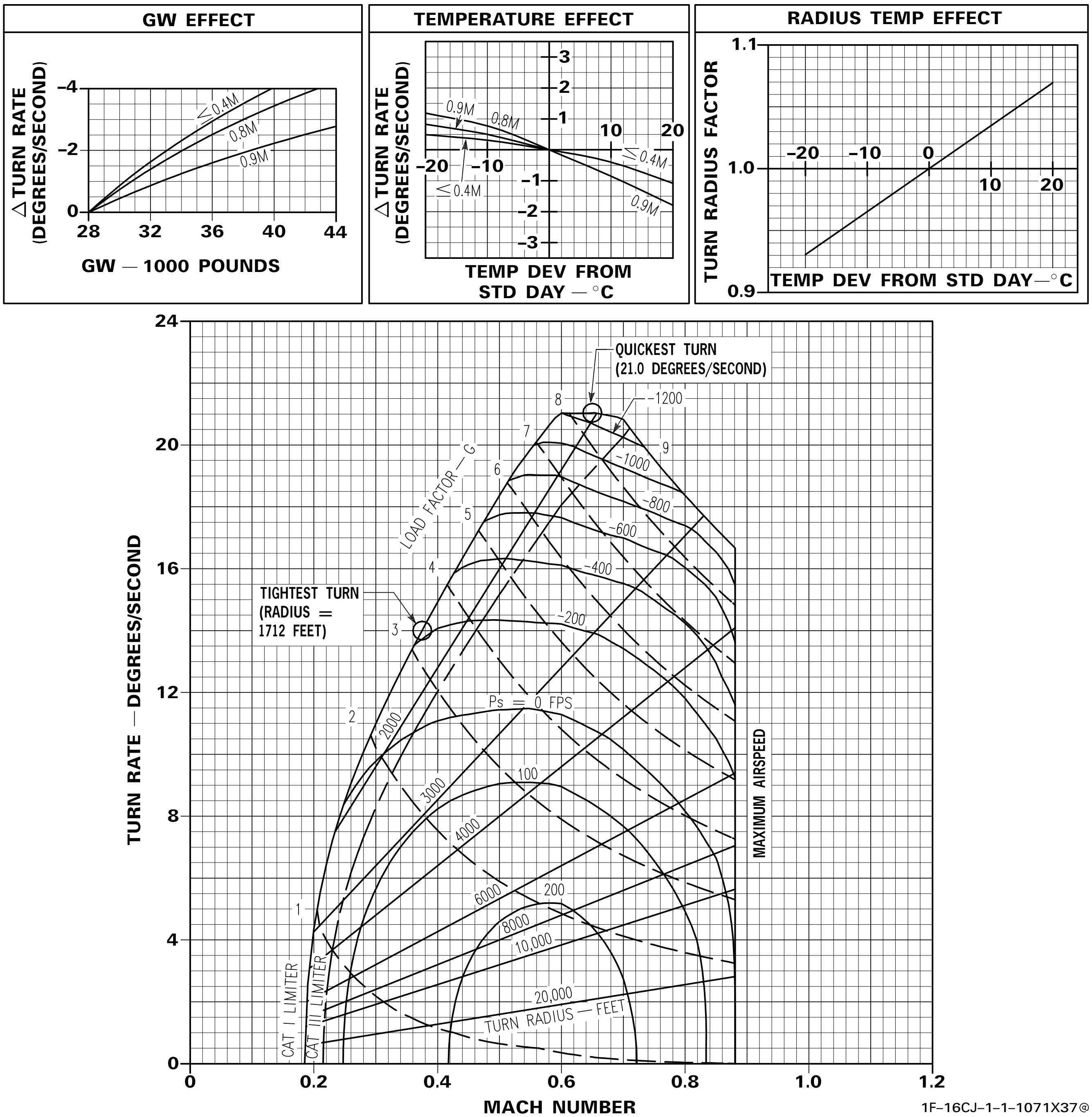


Figure C8-33.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

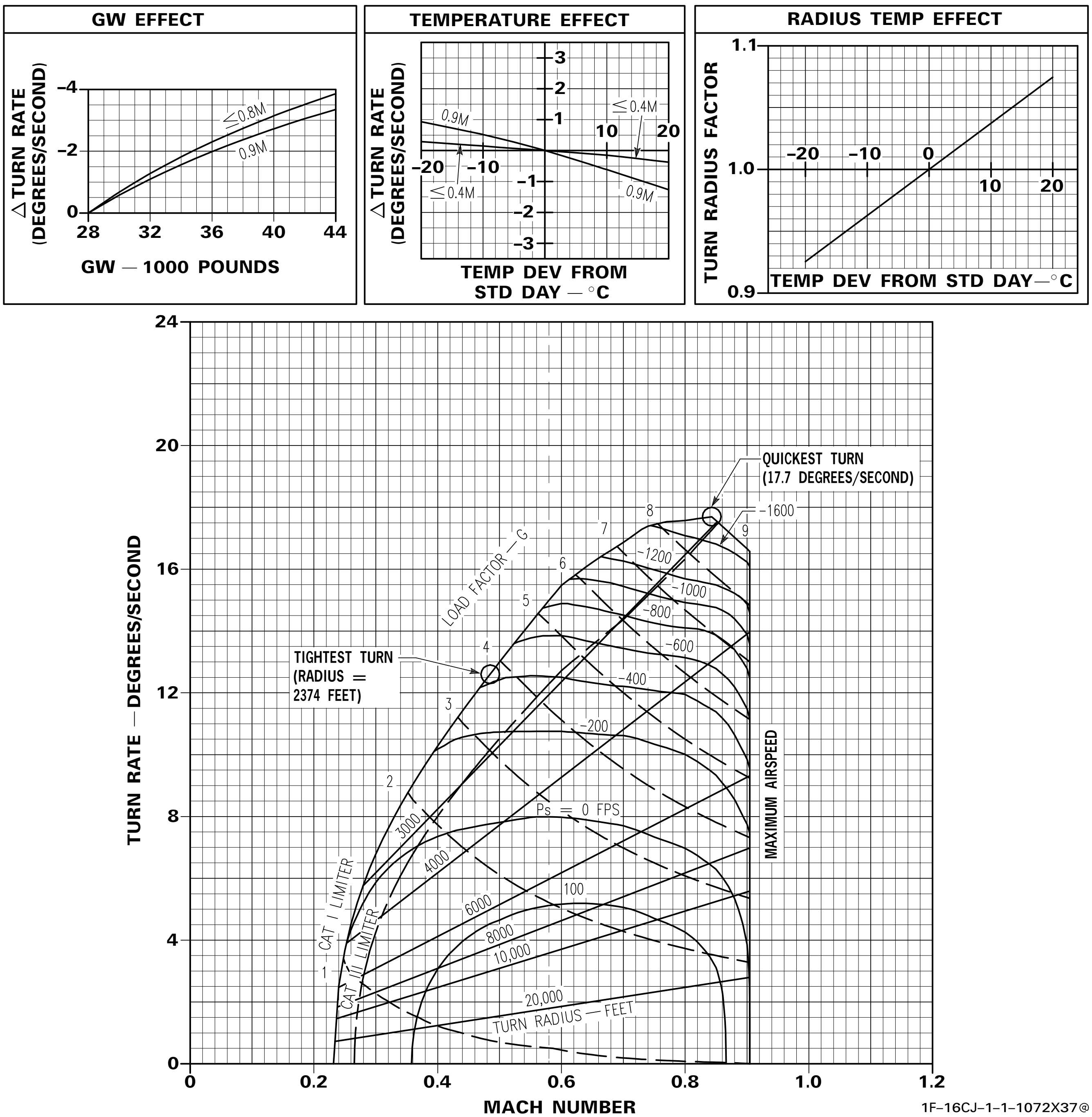


Figure C8-34.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

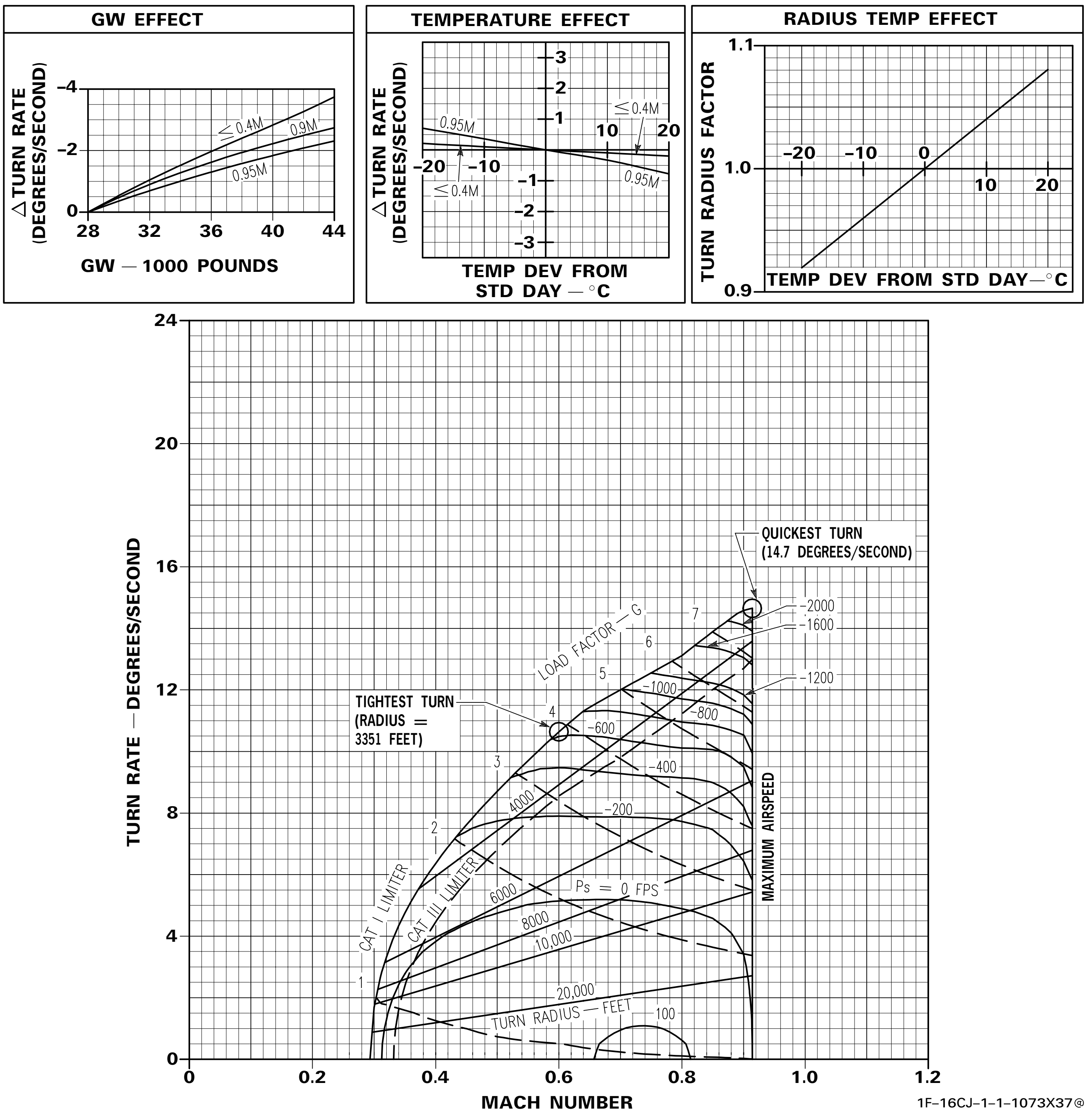


Figure C8-35.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MIL

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

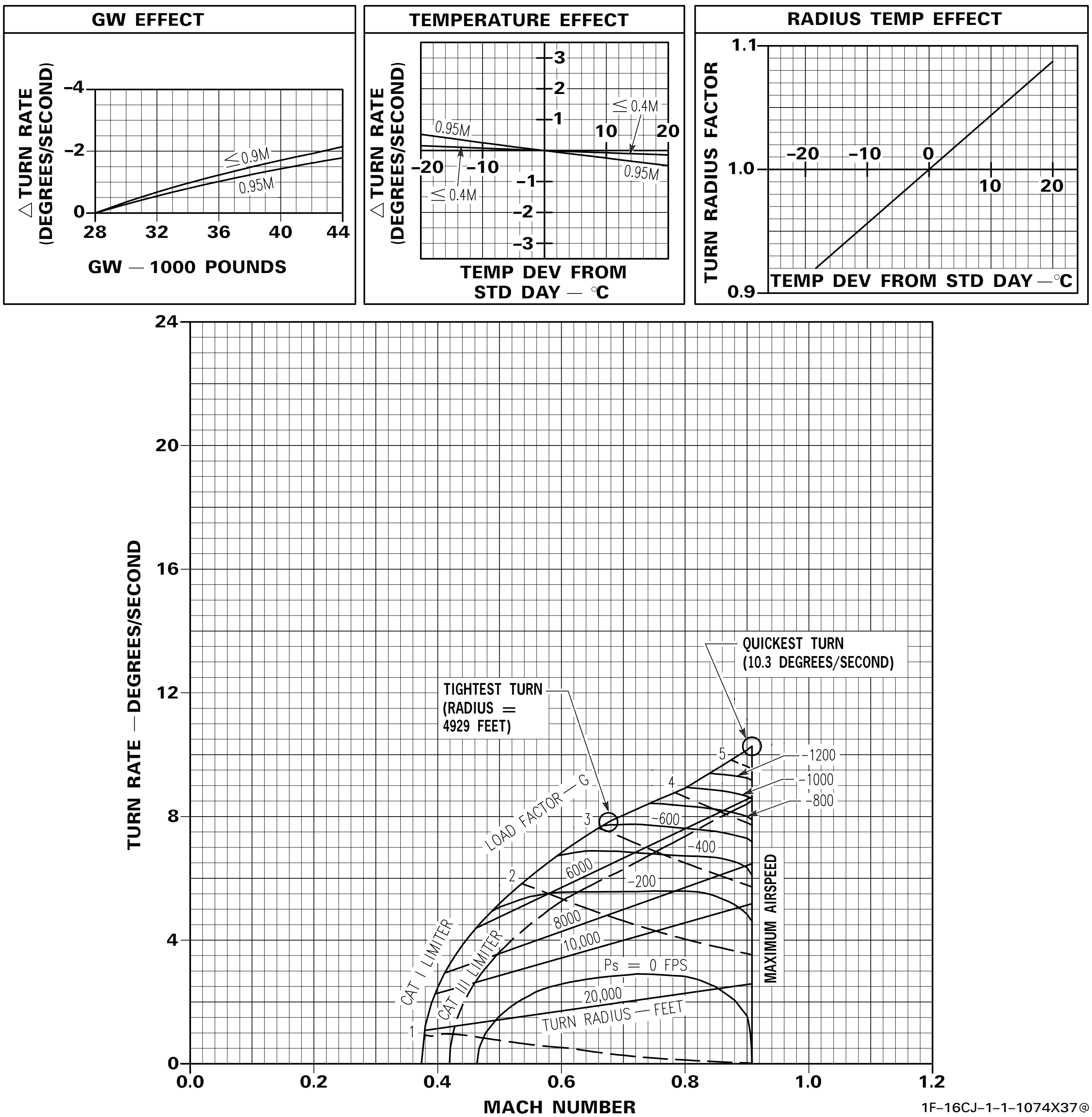


Figure C8-36.

Turn Performance — Sea Level

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

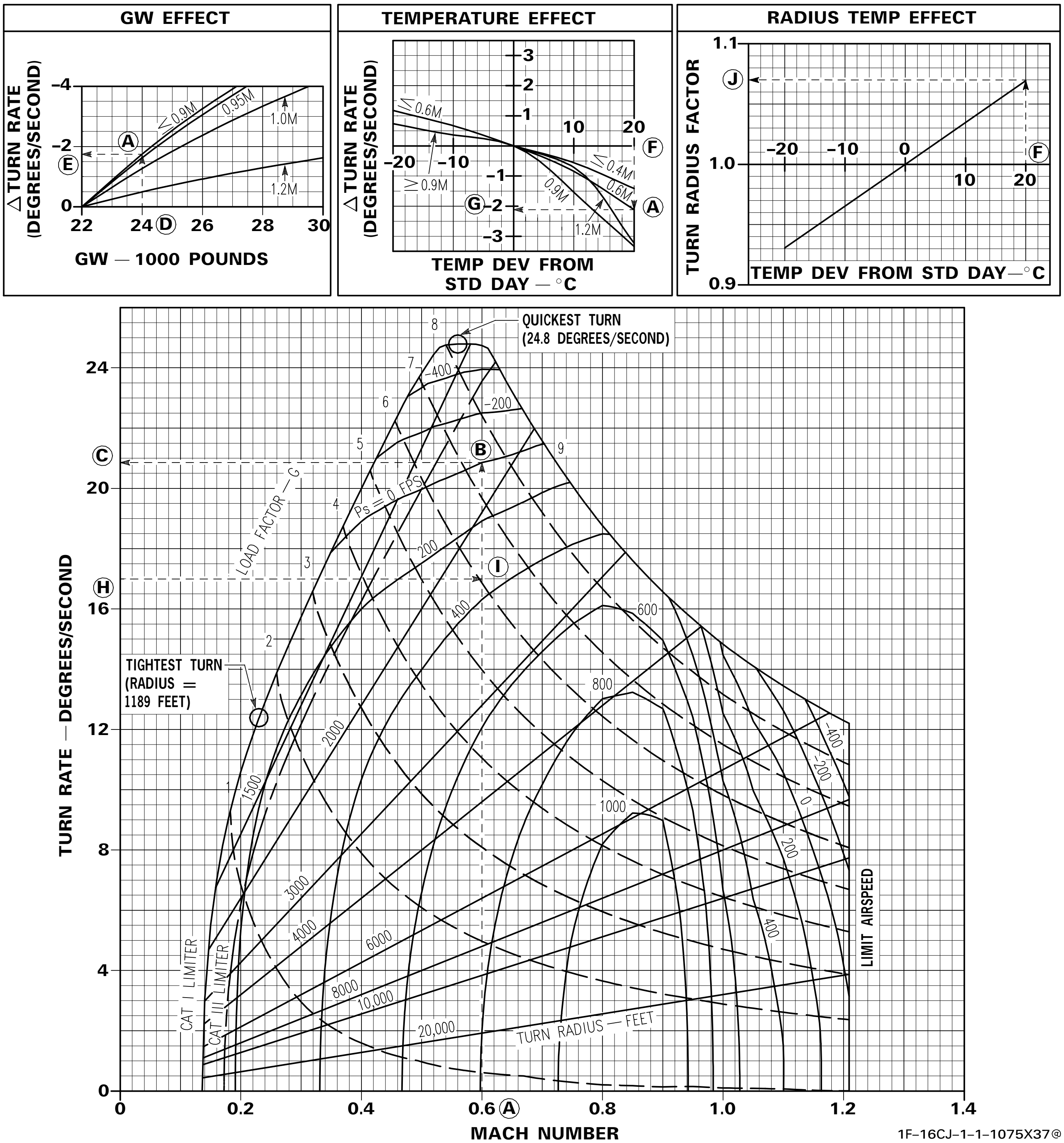


Figure C8-37.

Turn Performance — 5000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

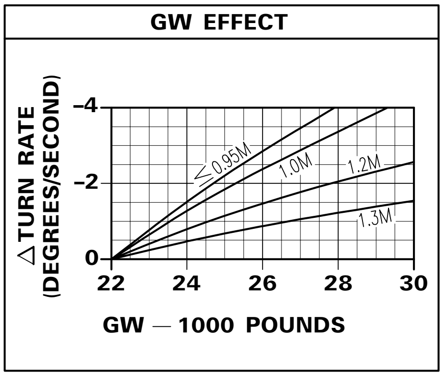
CONFIGURATION:

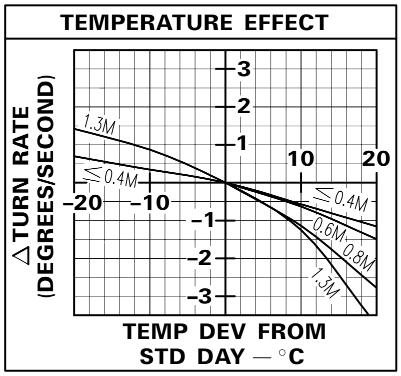
- DRAG INDEX = 0
- GW = 22,000 POUNDS

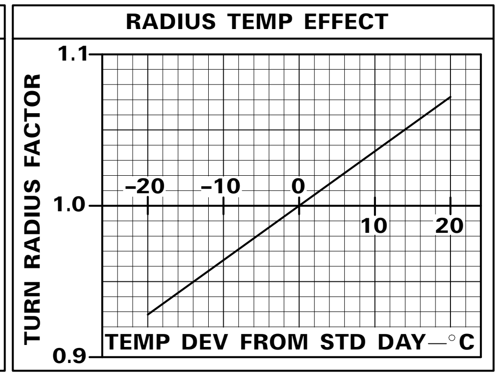
CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







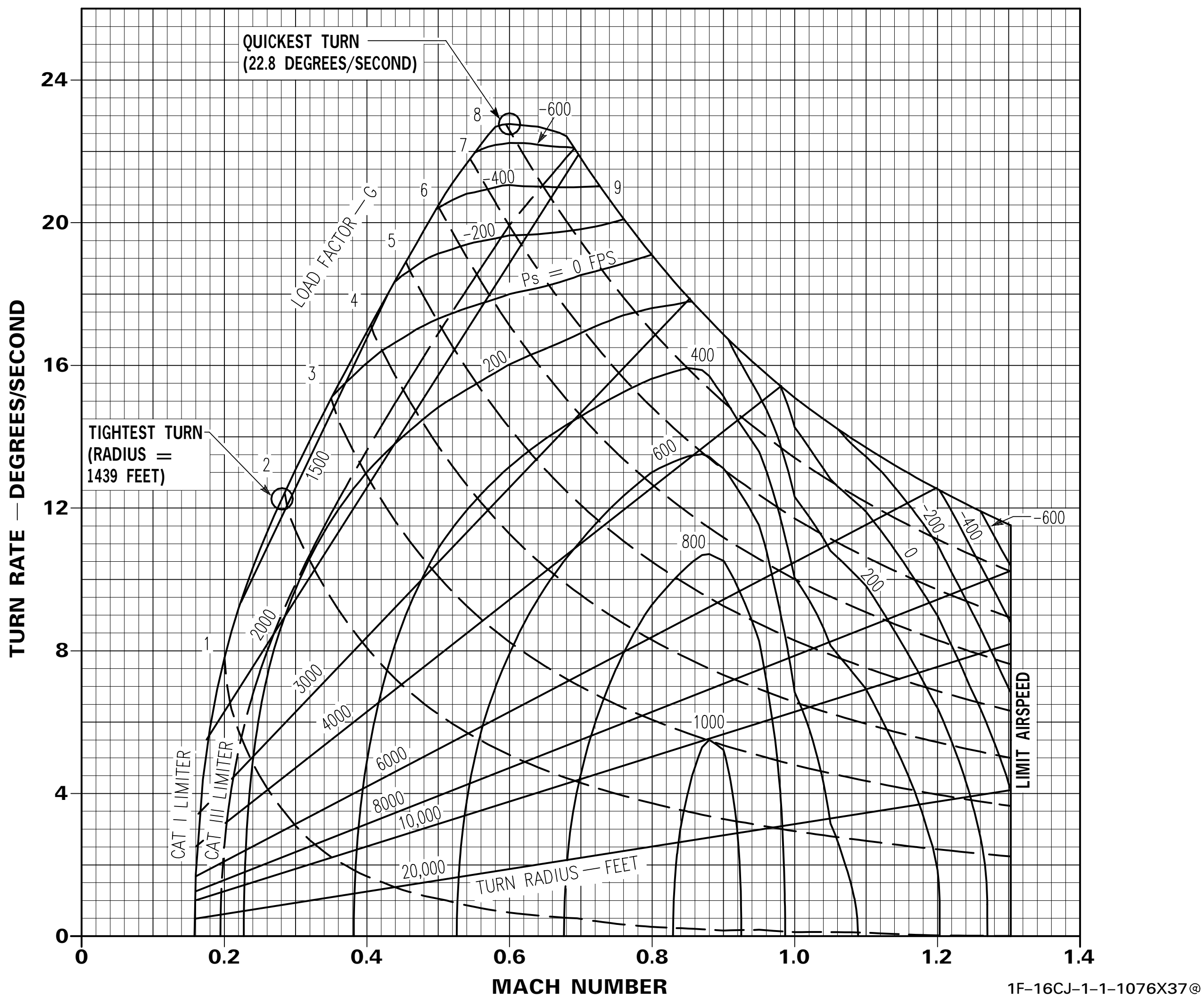


Figure C8-38.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

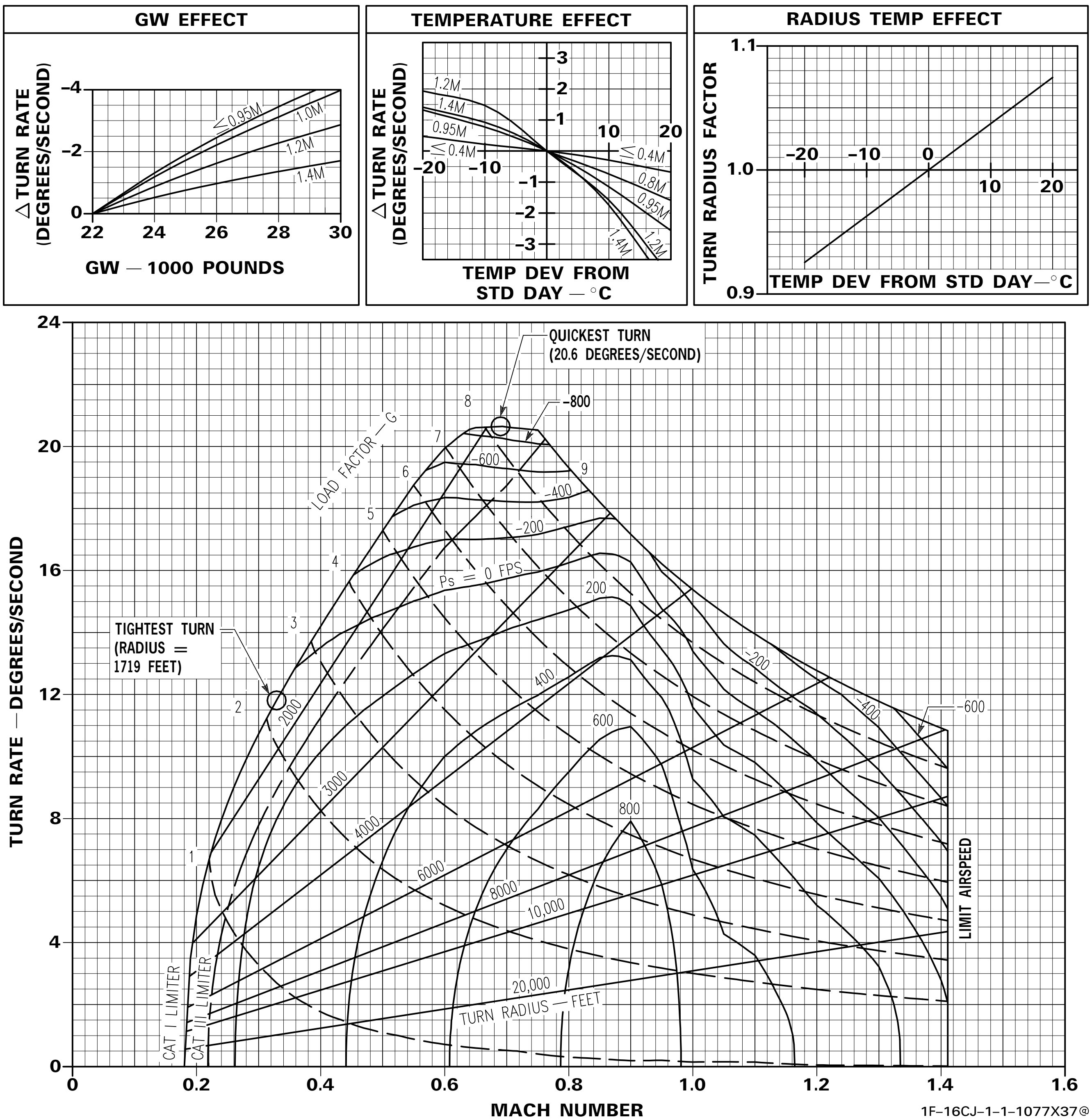


Figure C8-39.

Turn Performance — 15,000 Feet

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

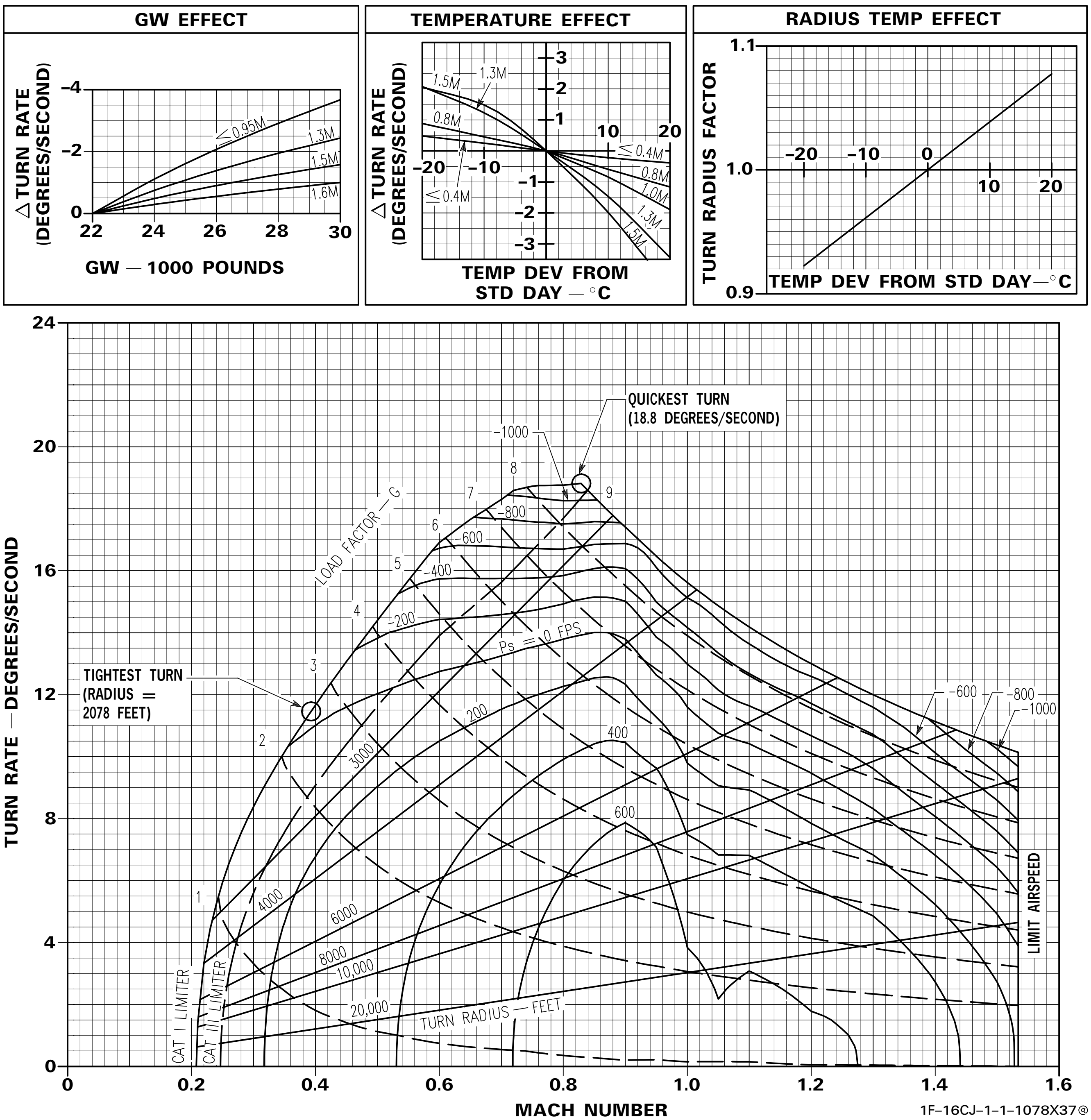


Figure C8-40.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

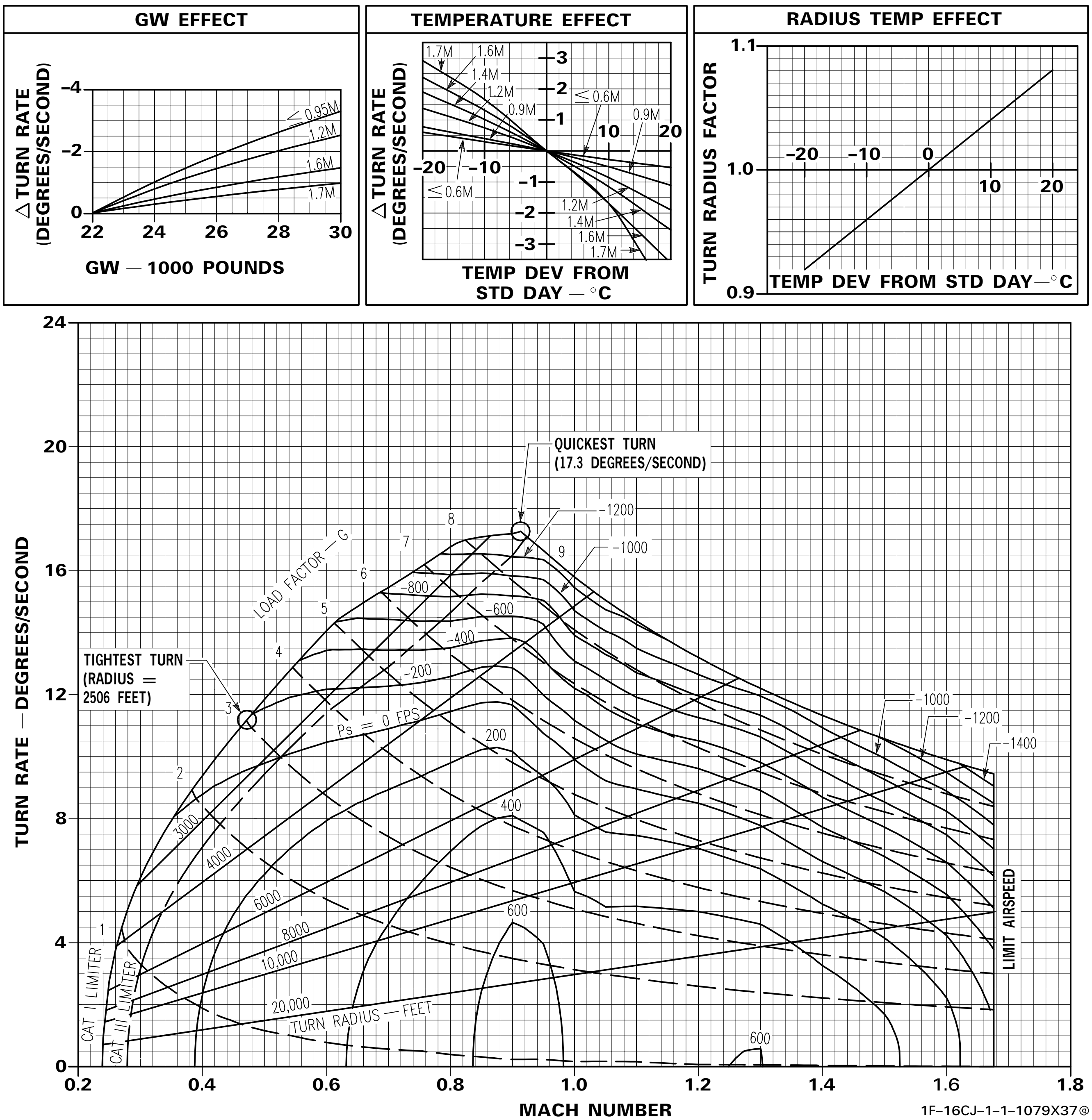


Figure C8-41.

Turn Performance — 25,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

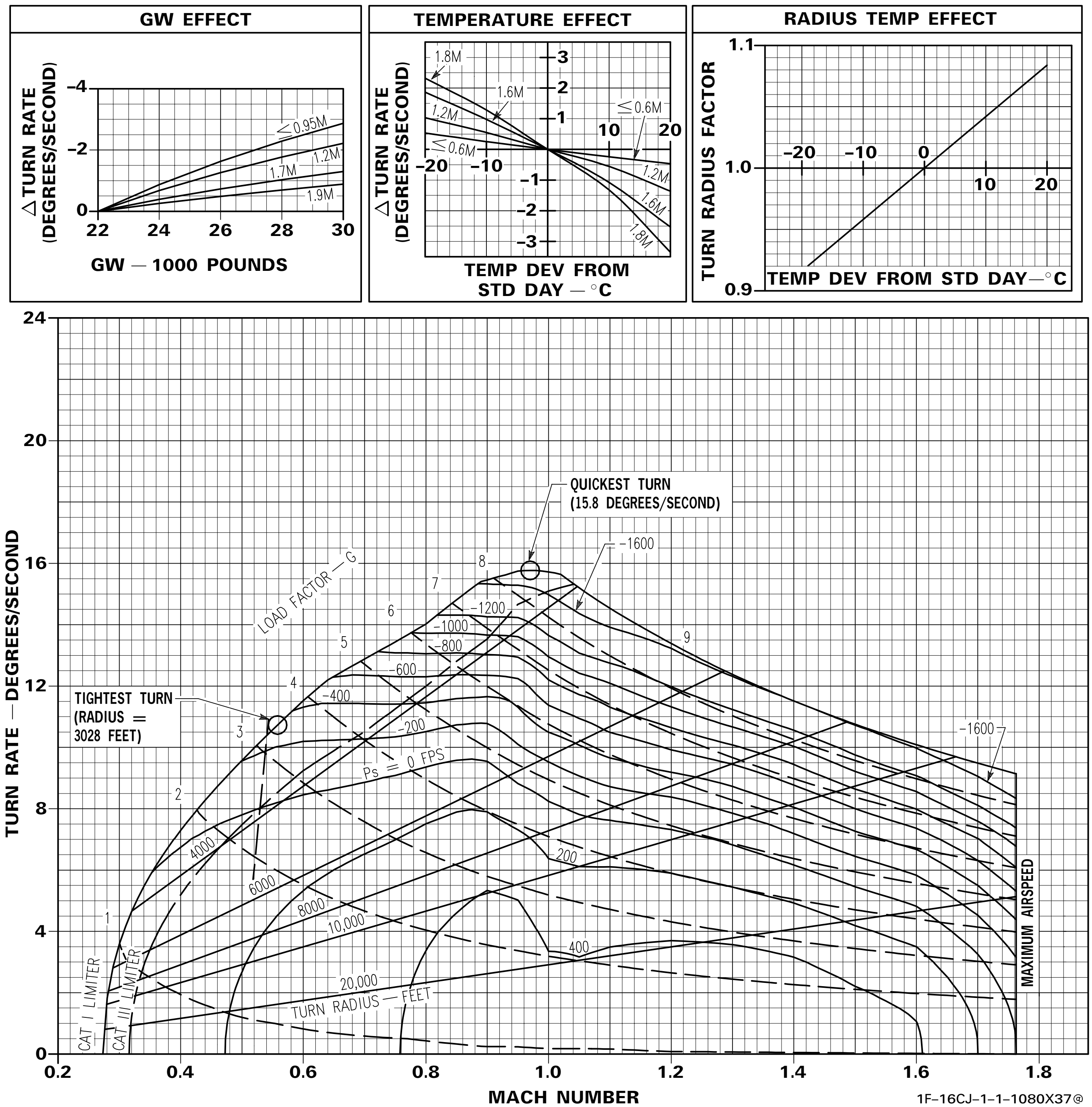


Figure C8-42.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

1.9M

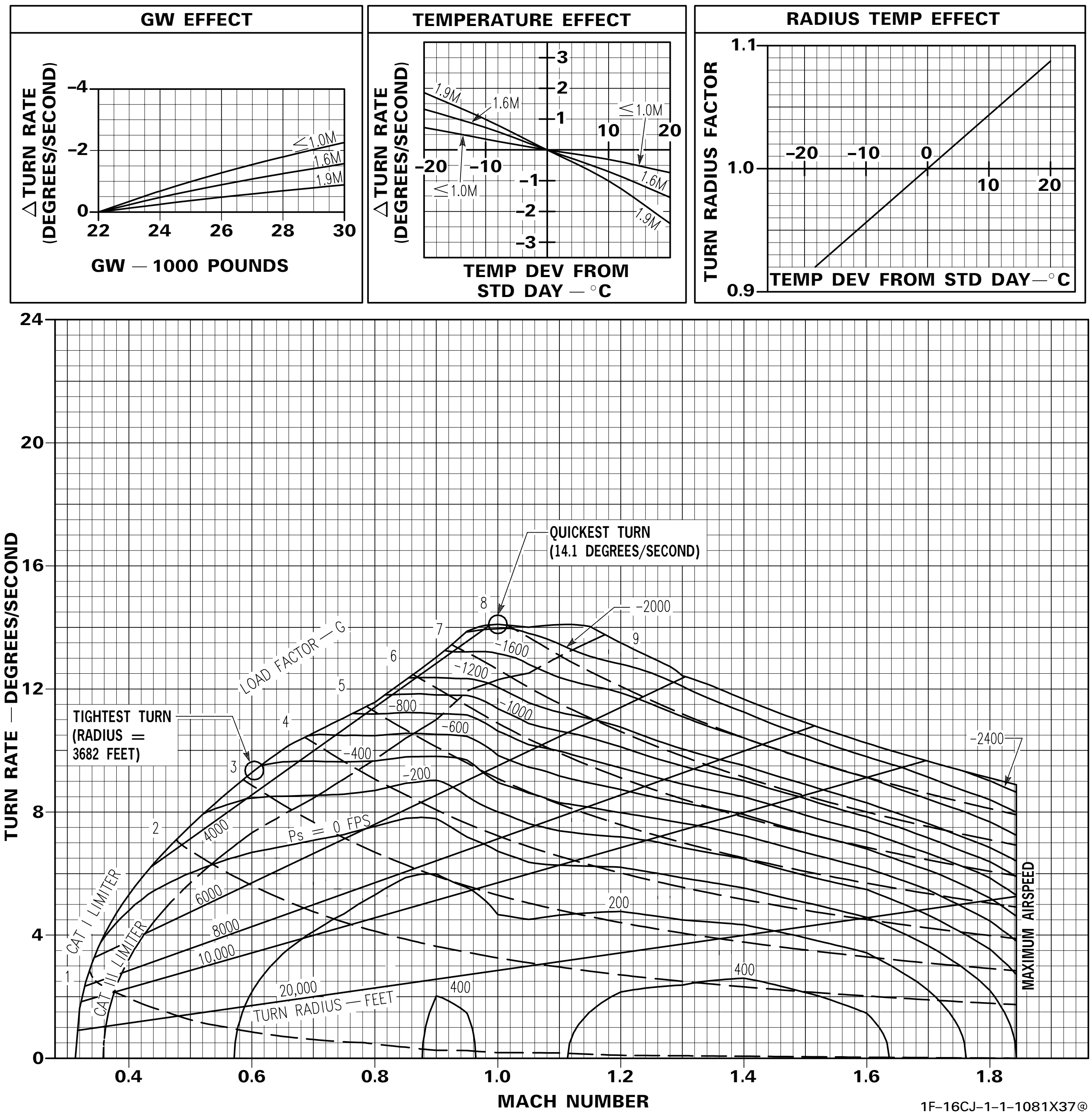


Figure C8-43.

Turn Performance — 35,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

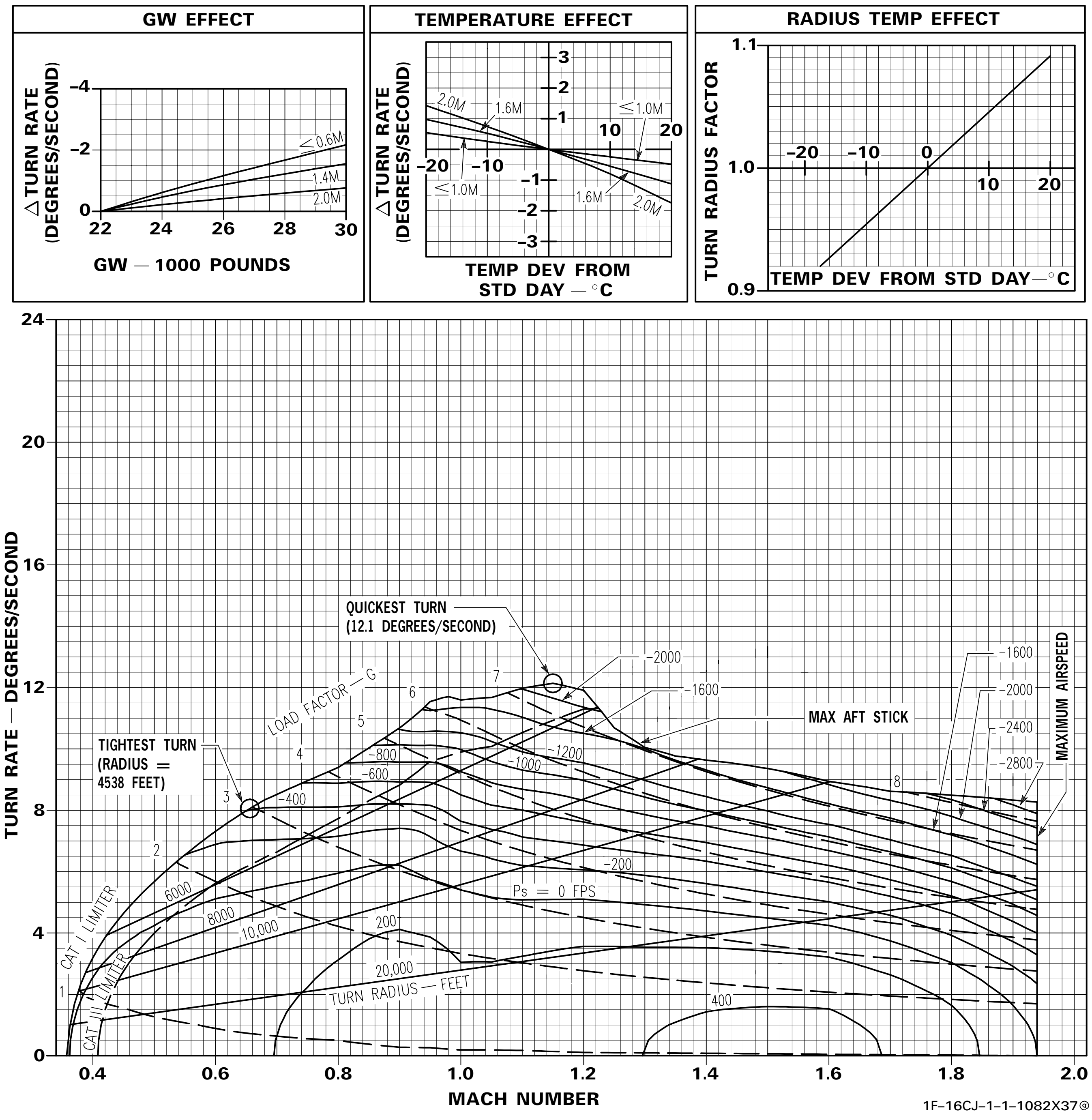


Figure C8-44.

Turn Performance — 40,000 Feet

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

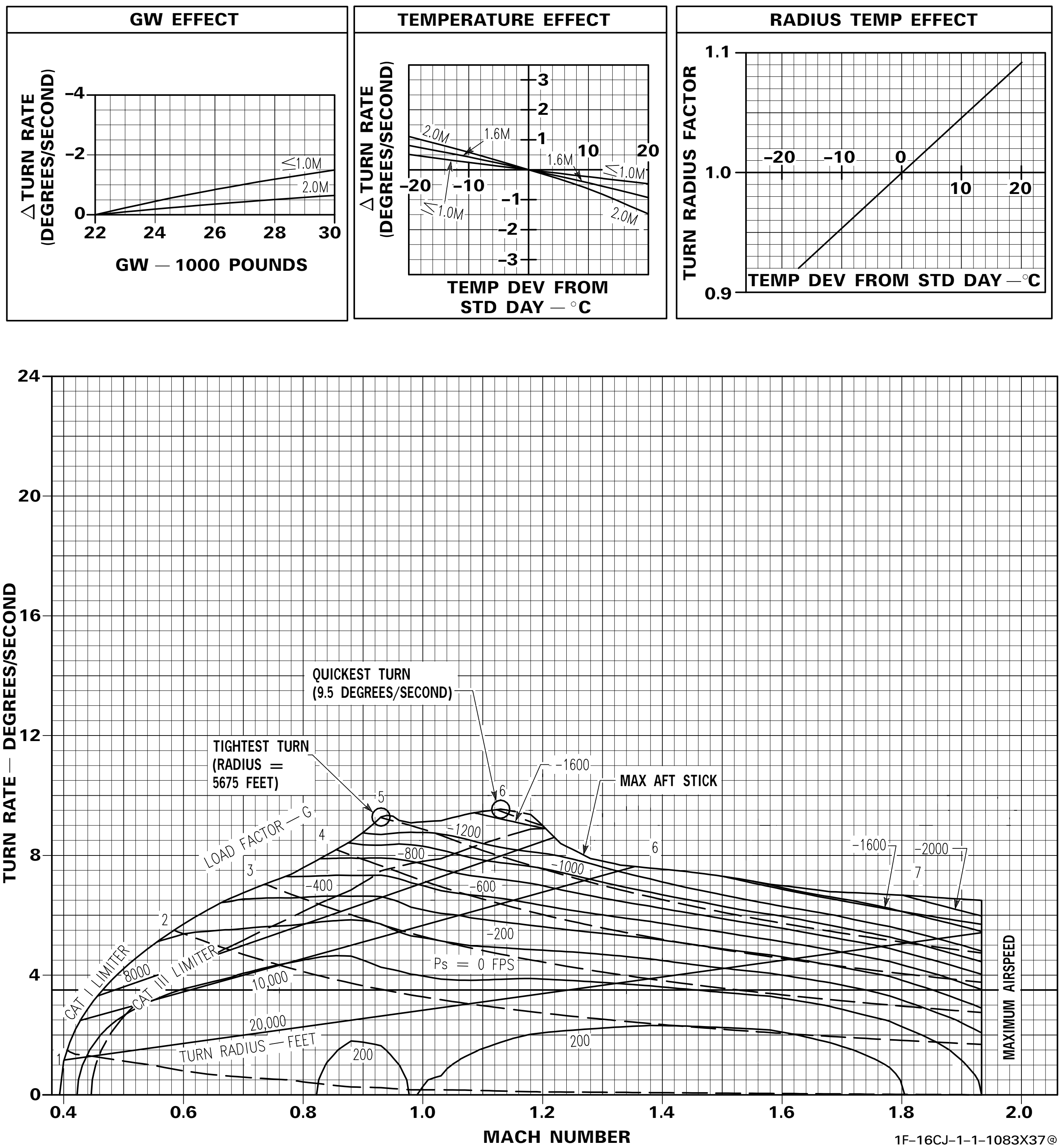


Figure C8-45.

Turn Performance — 45,000 Feet

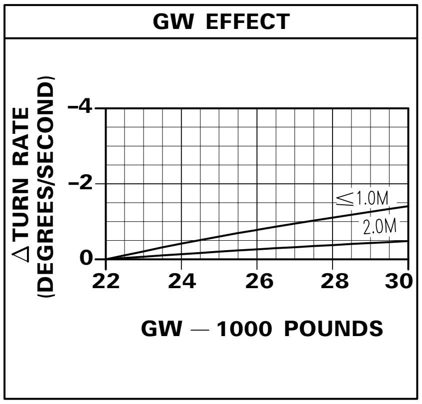
DATA BASIS ESTIMATED

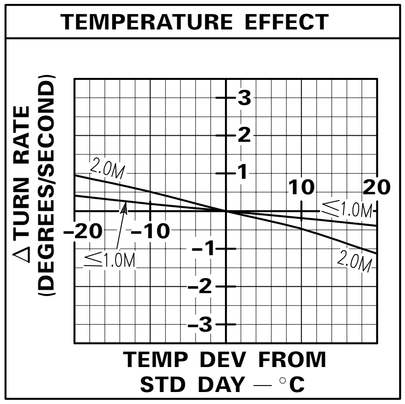
ENGINE F100–PW–229/CFT

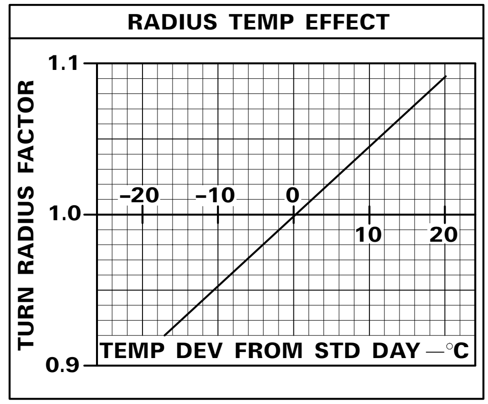
CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







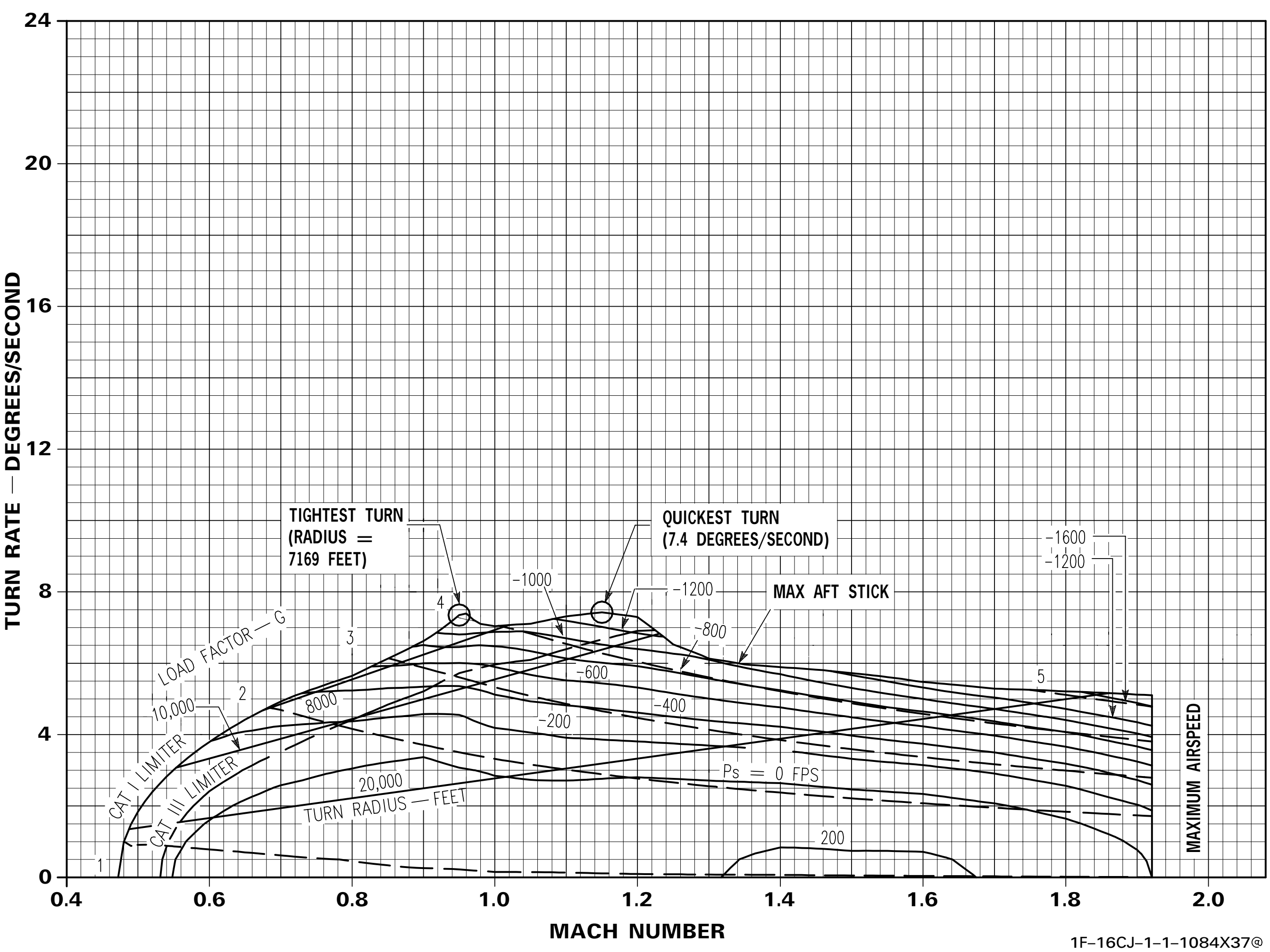


Figure C8-46.

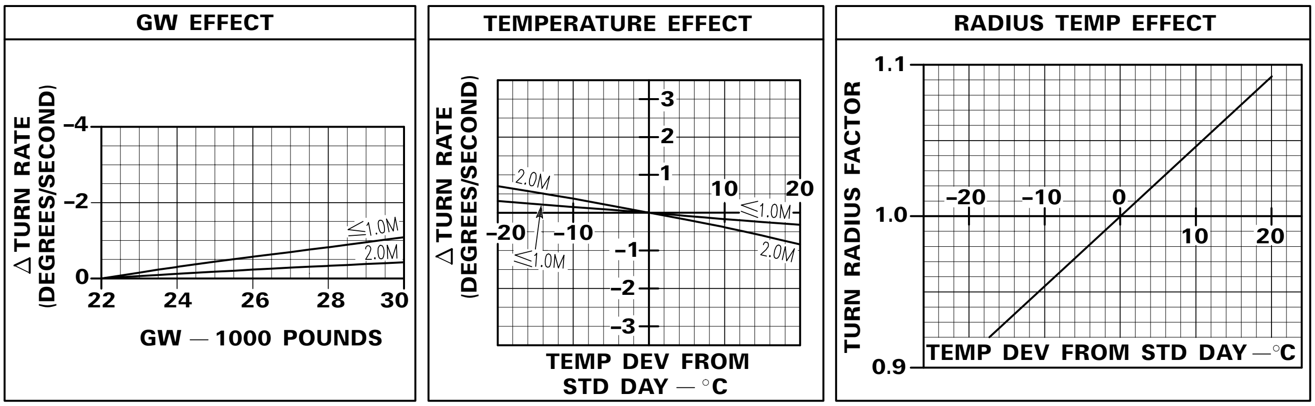
Turn Performance — 50,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 0
- GW = 22,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.



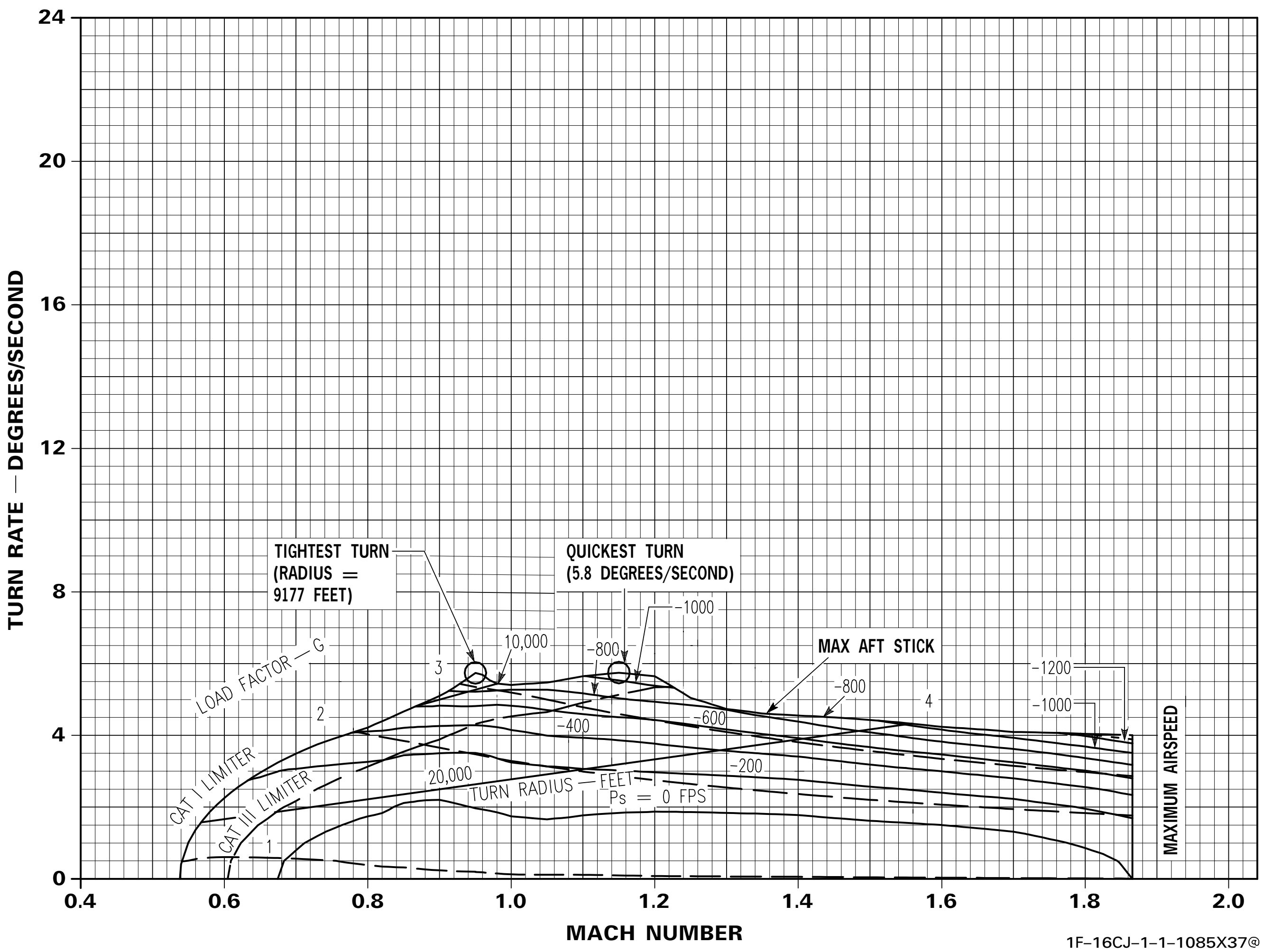


Figure C8-47.

Turn Performance — Sea Level

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- **DRAG INDEX = 50**
- **GW = 26,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

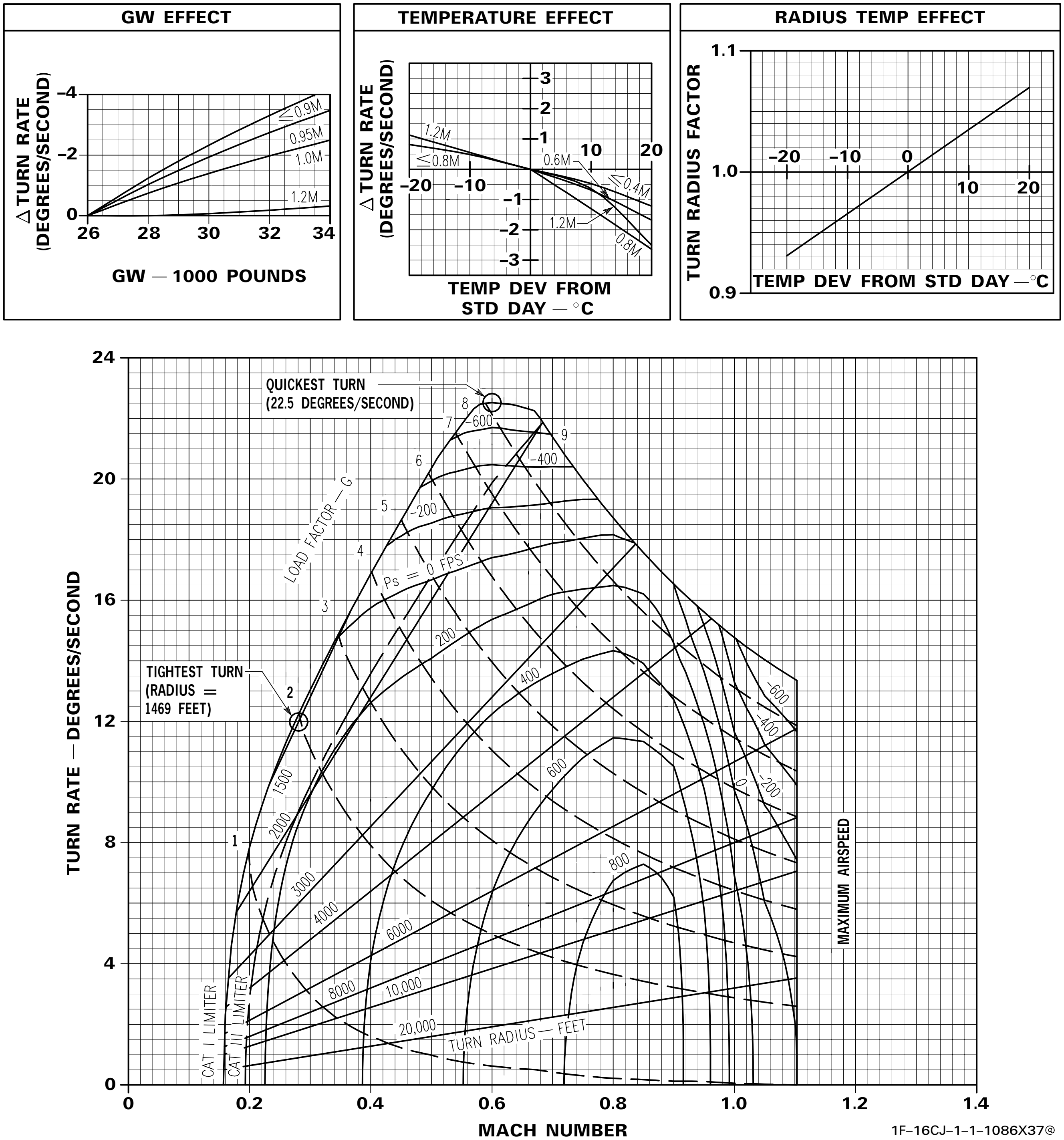


Figure C8-48.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- **DRAG INDEX = 50**
- **GW = 26,000 POUNDS**

CONDITIONS:
- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

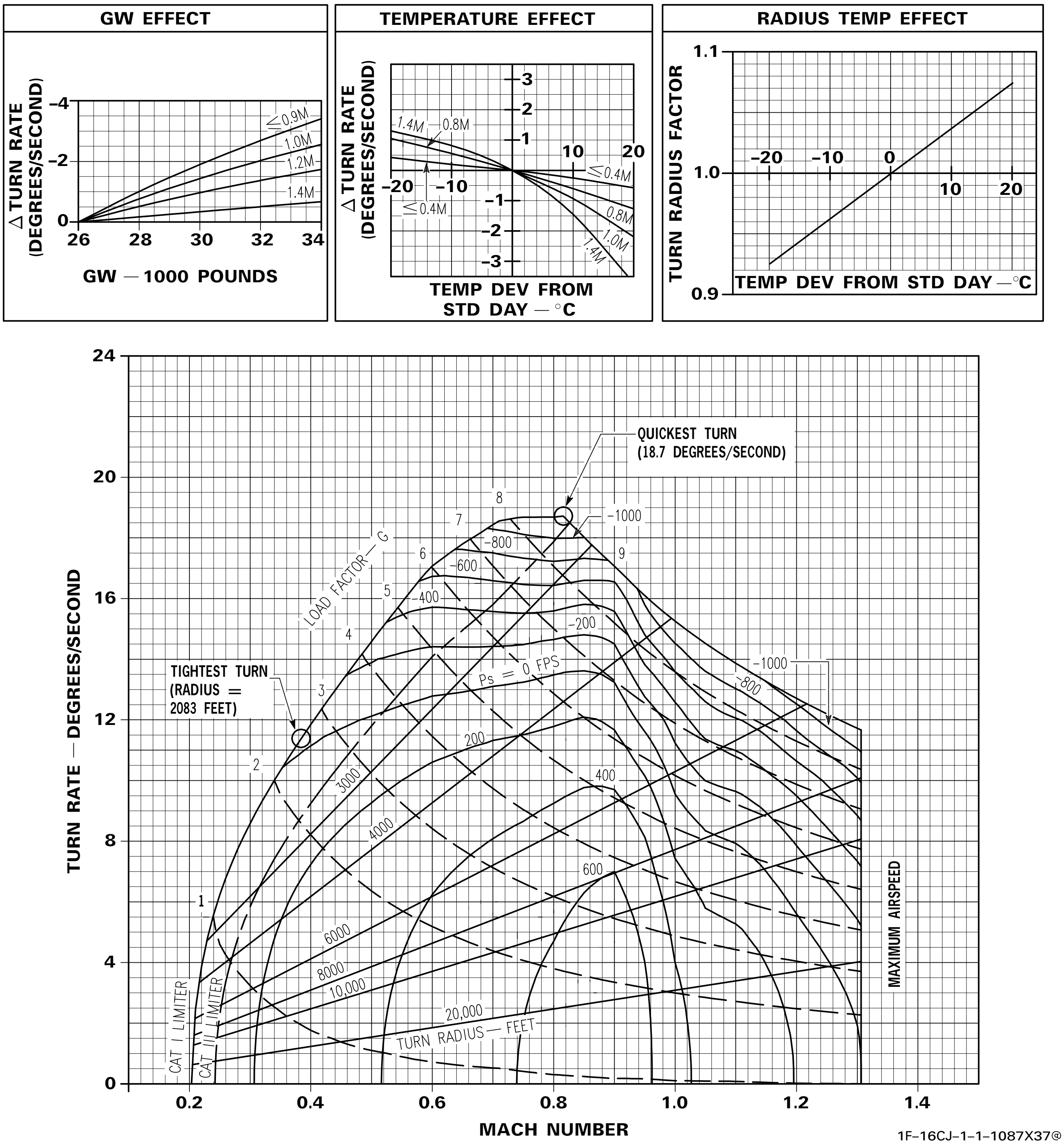


Figure C8-49.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- **DRAG INDEX = 50**
- **GW = 26,000 POUNDS**

CONDITIONS:

- **STANDARD DAY**
- **MAX AB**

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

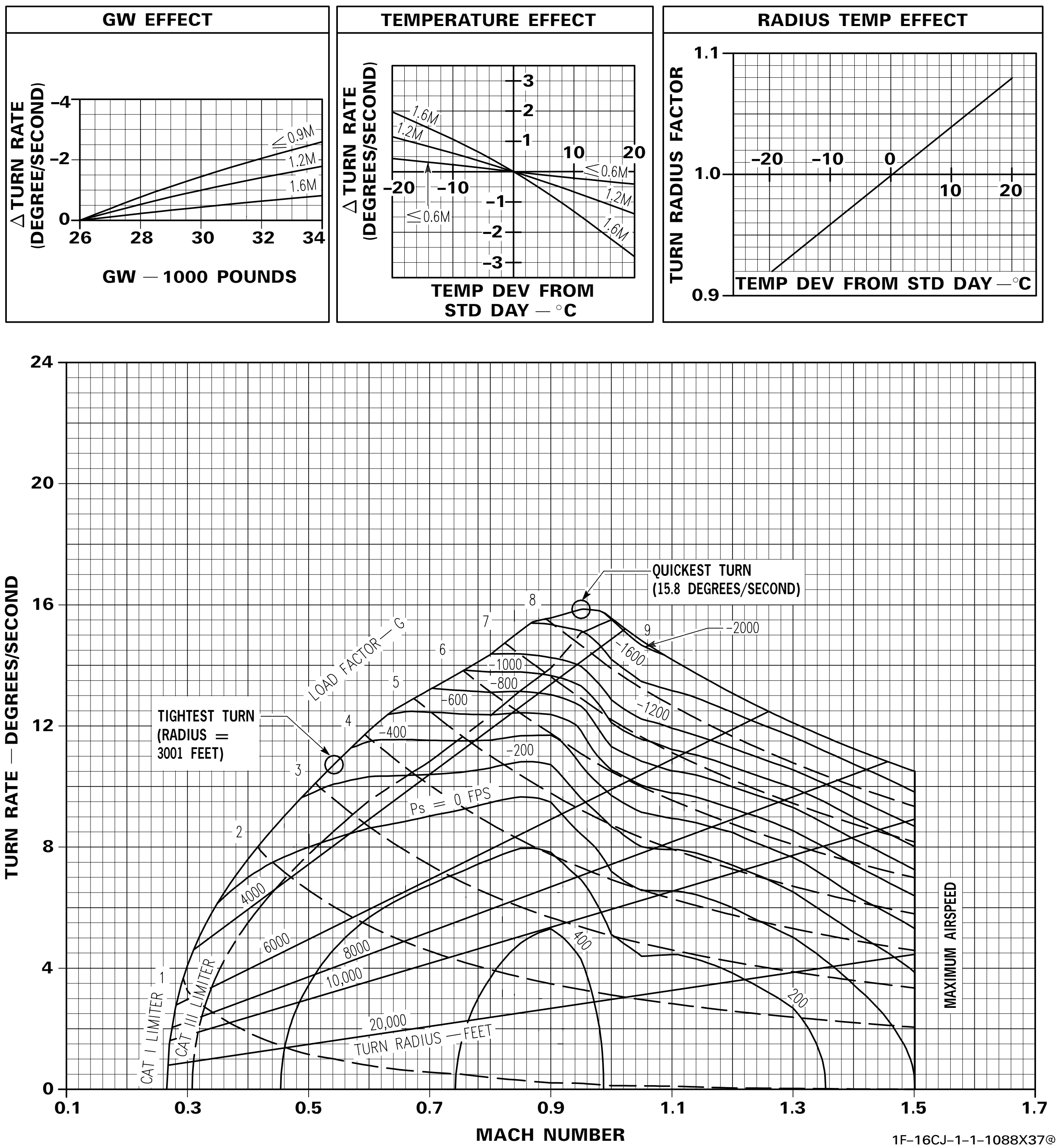


Figure C8-50.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:

- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

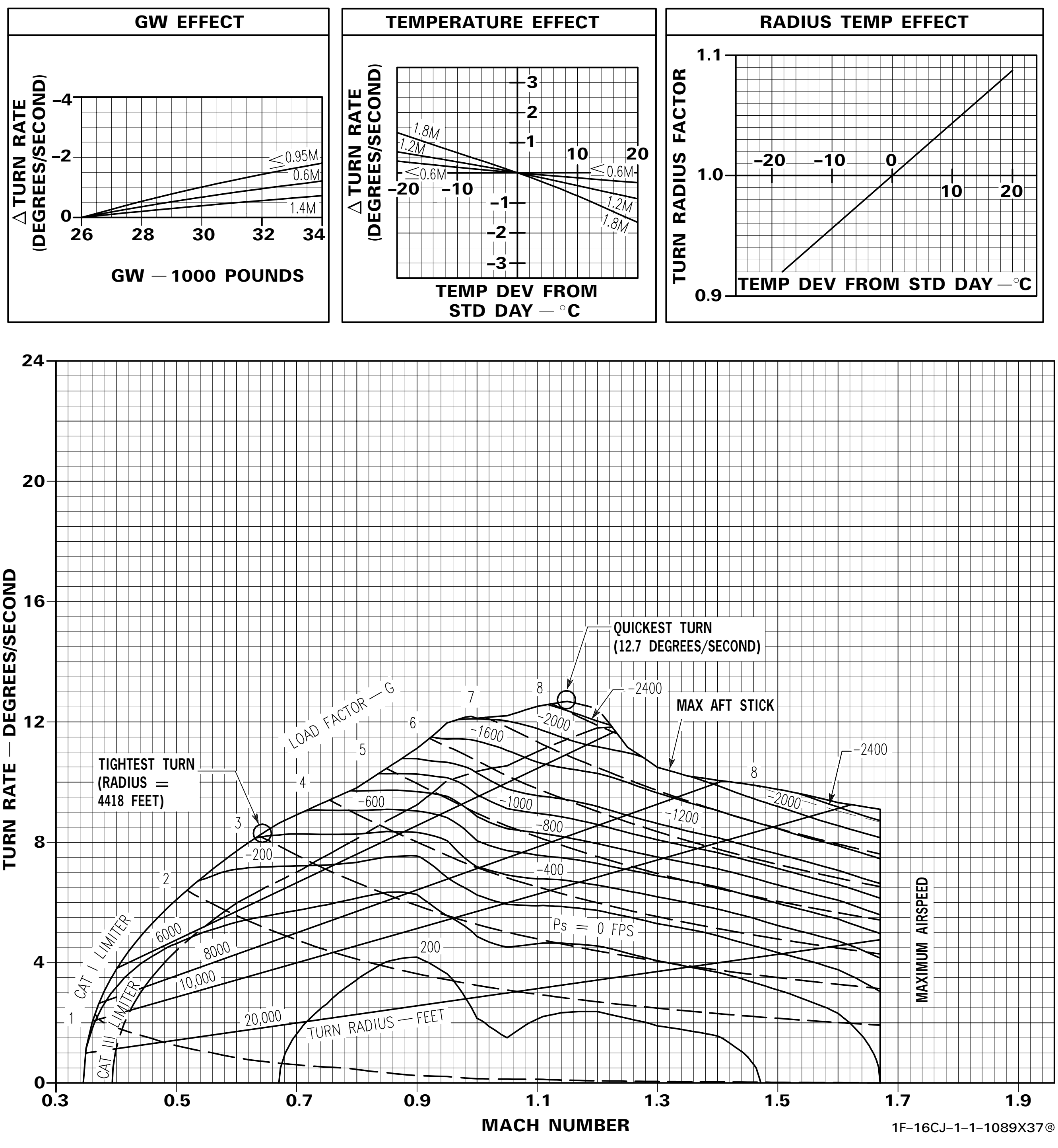


Figure C8-51.

Turn Performance — 40,000 Feet

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 50
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

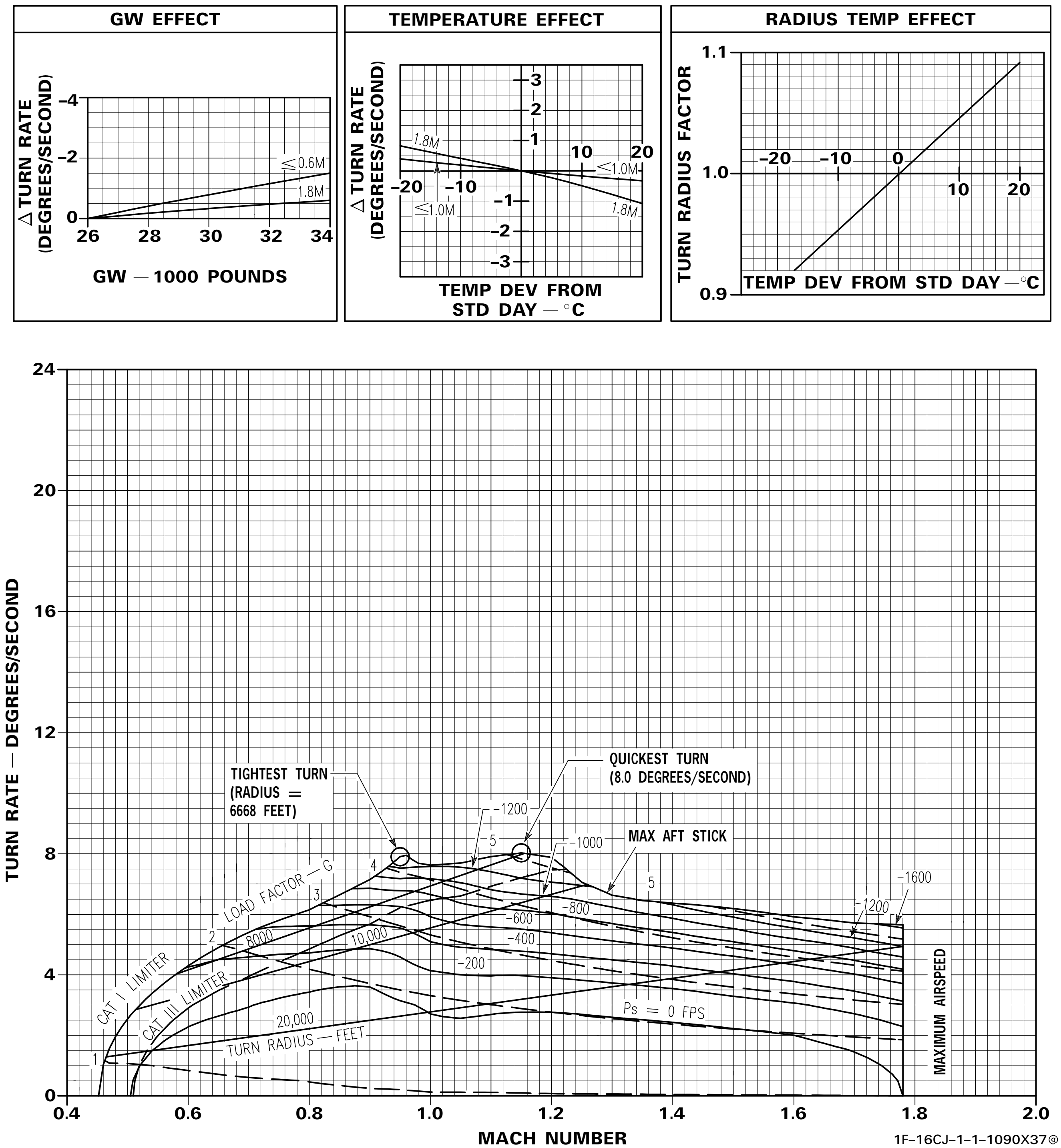


Figure C8-52.

Turn Performance — Sea Level

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

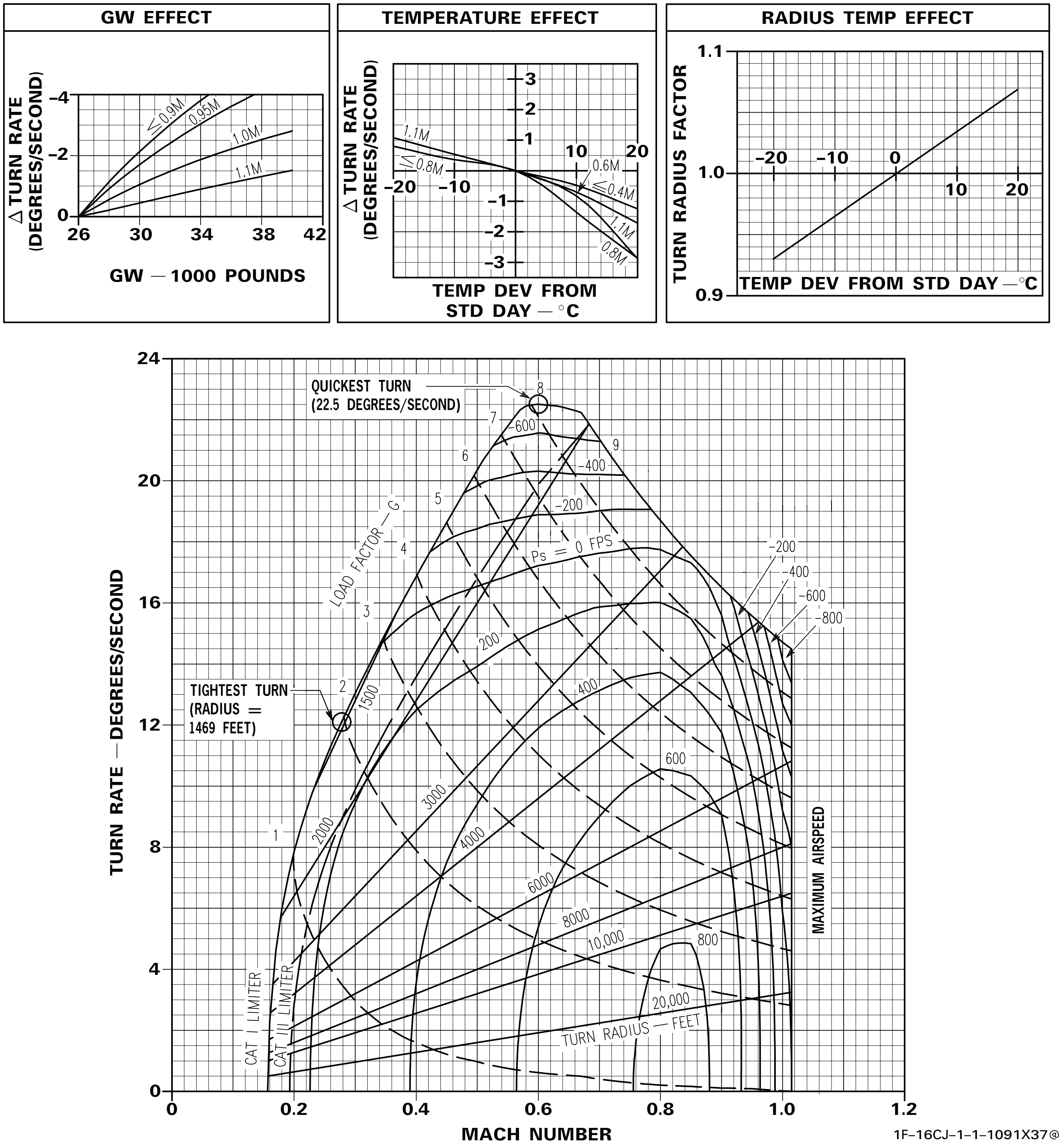


Figure C8-53.

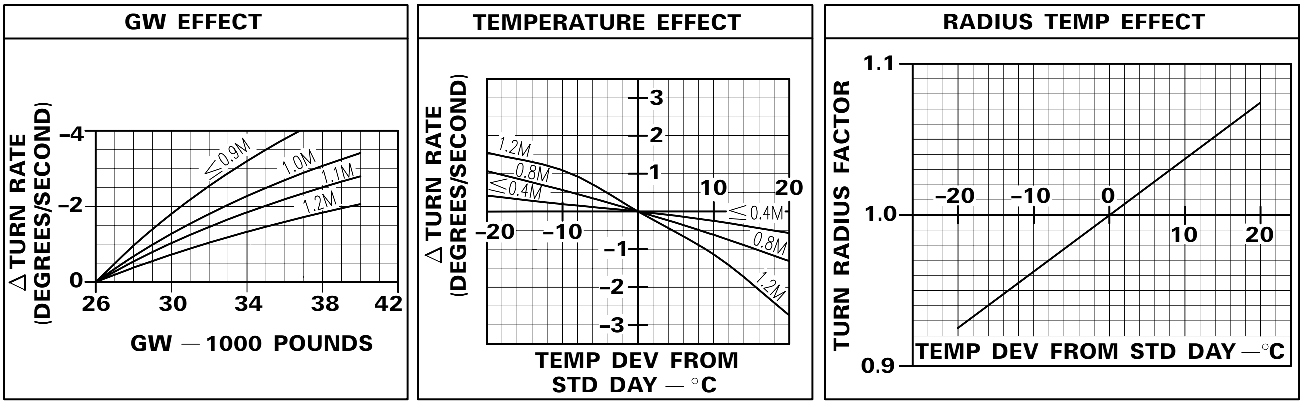
Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.



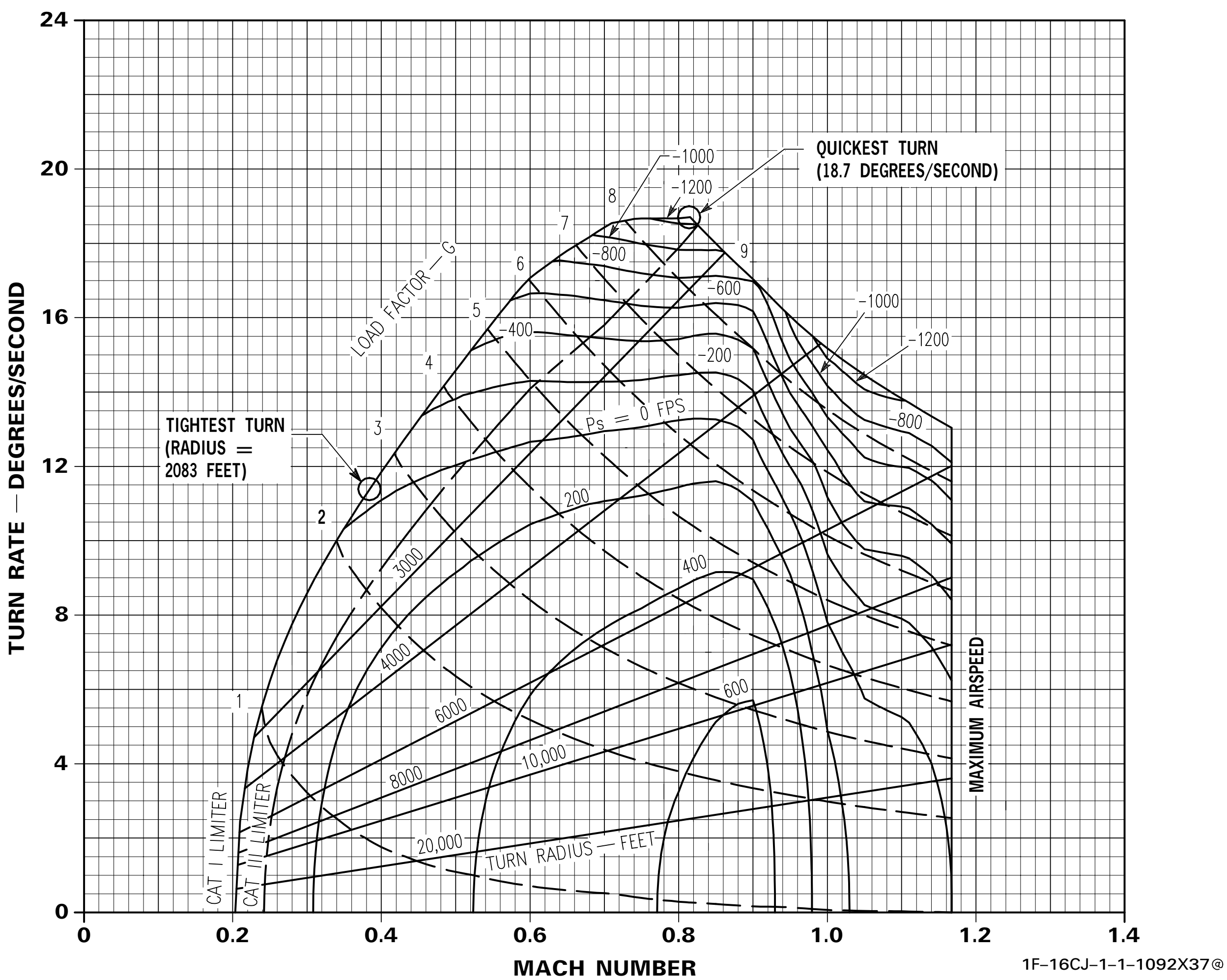


Figure C8-54.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

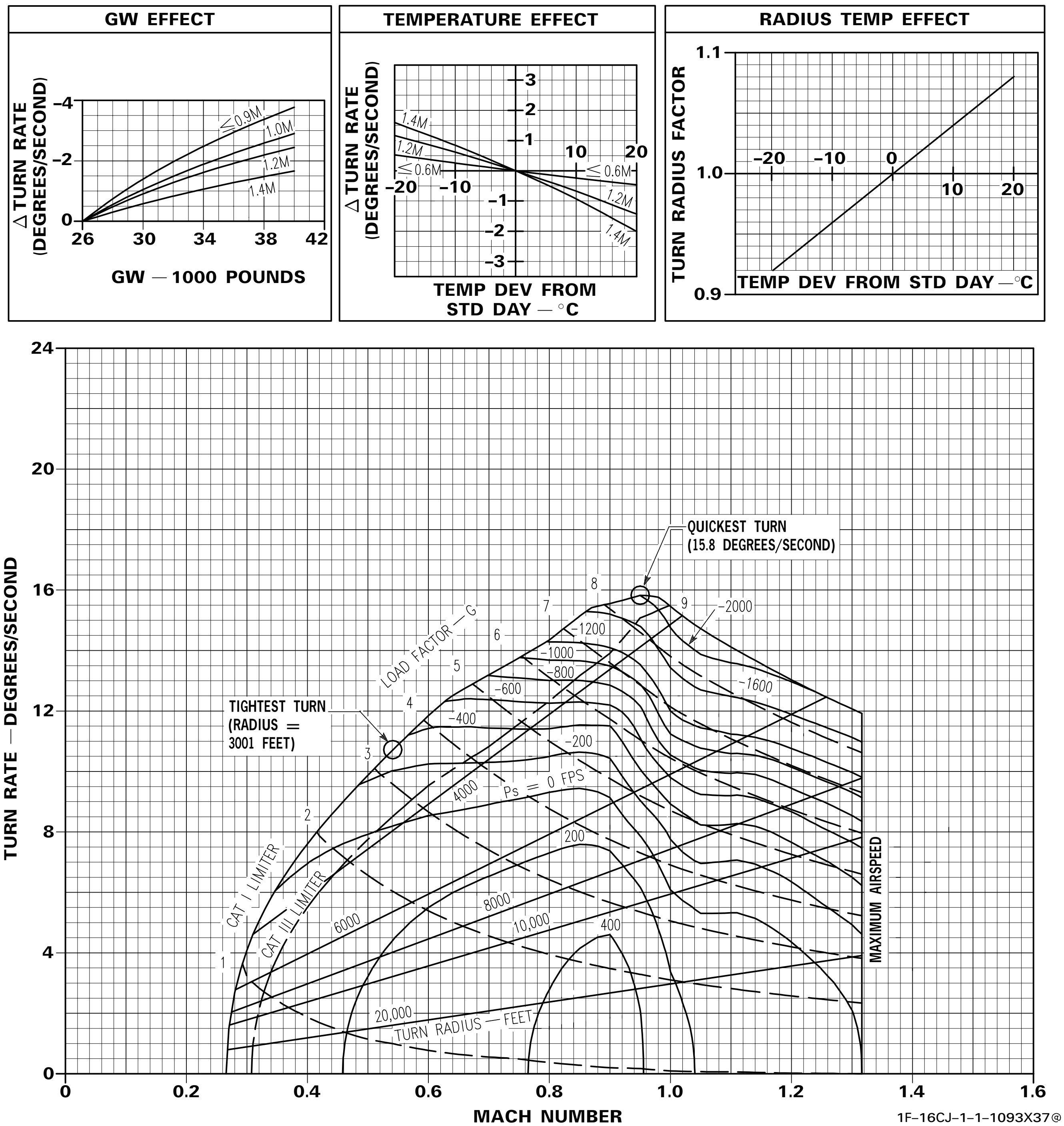


Figure C8-55.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 100
- GW = 26,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

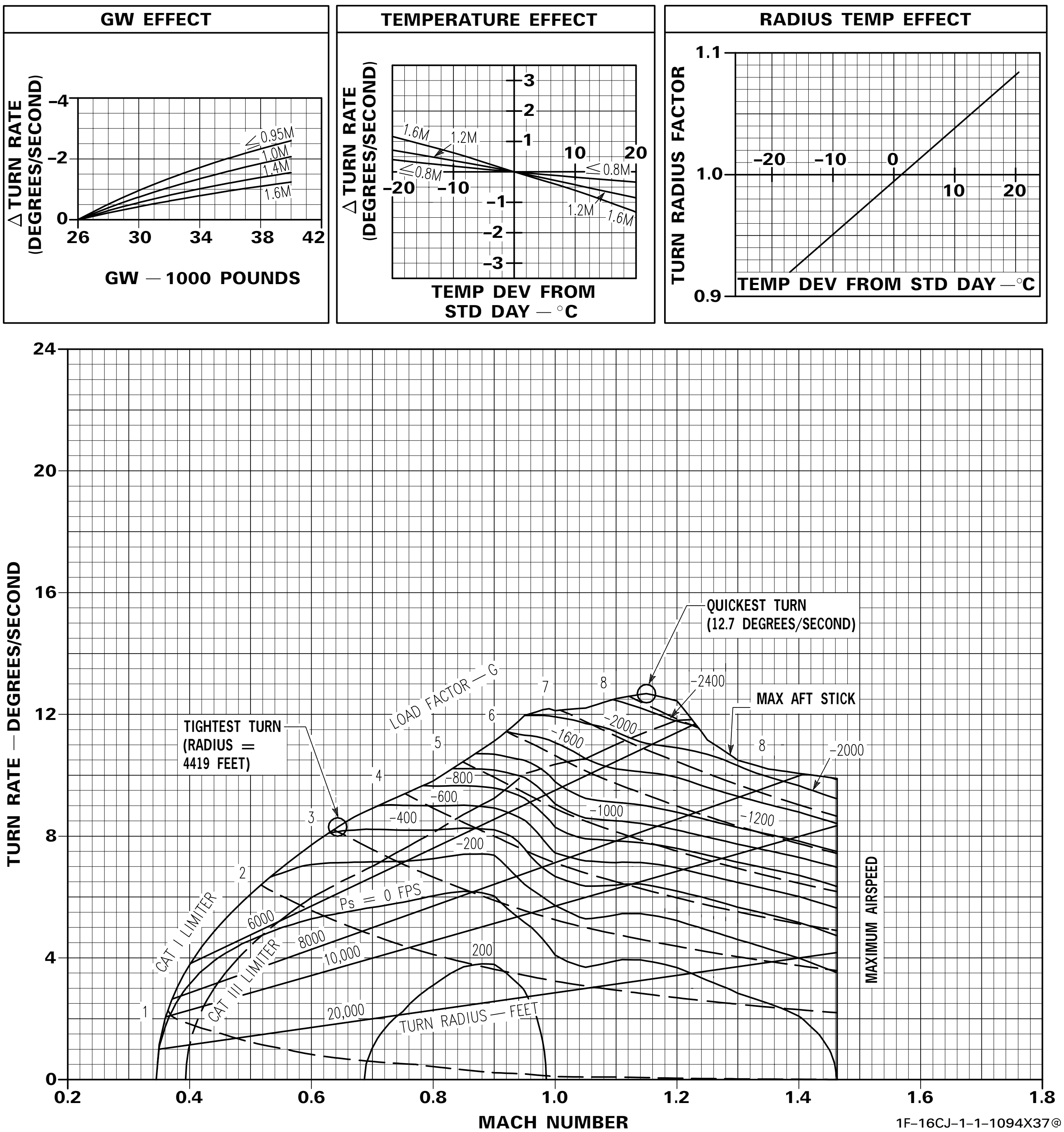


Figure C8-56.

Turn Performance — Sea Level

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

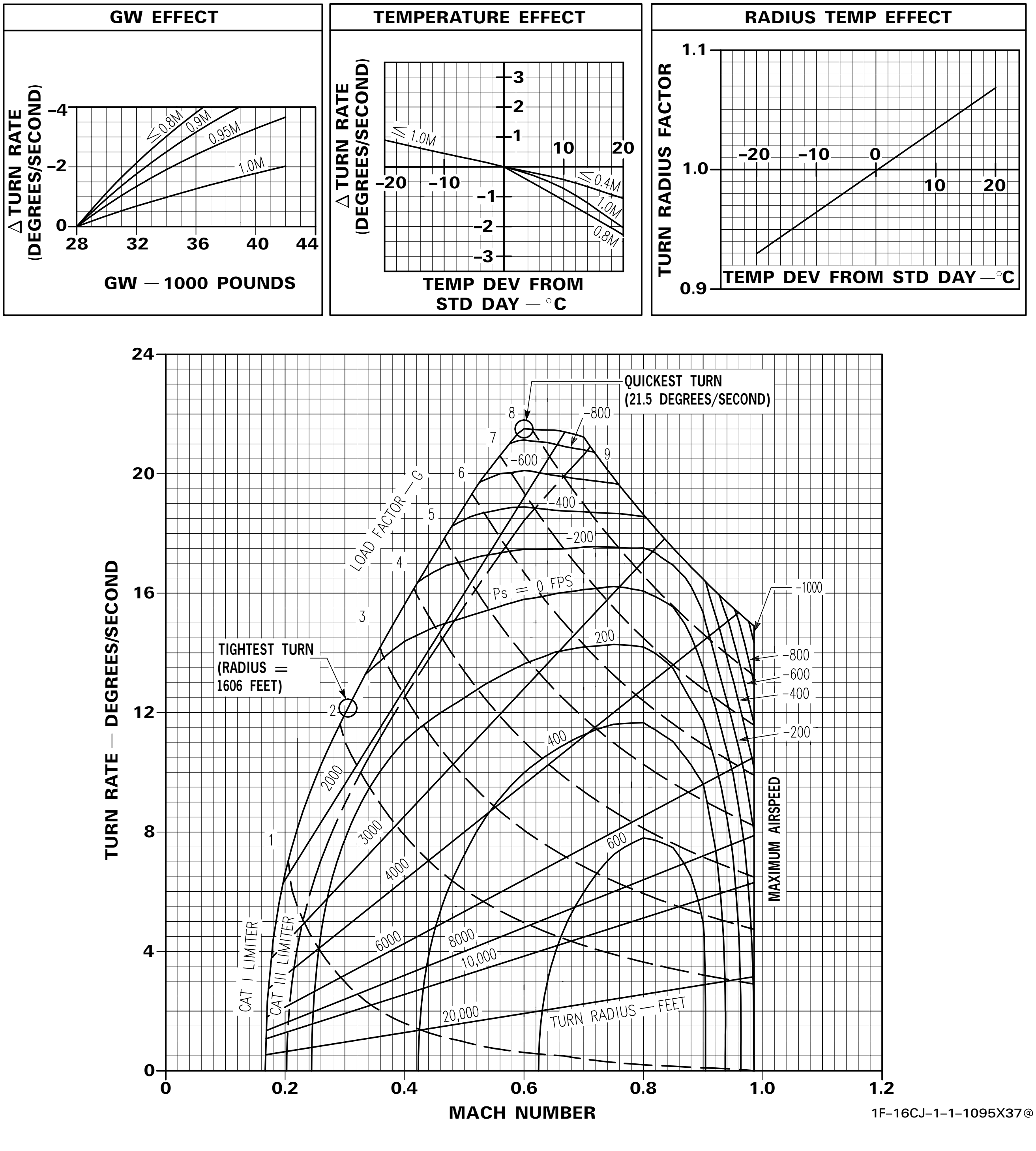


Figure C8-57.

Turn Performance — 10,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

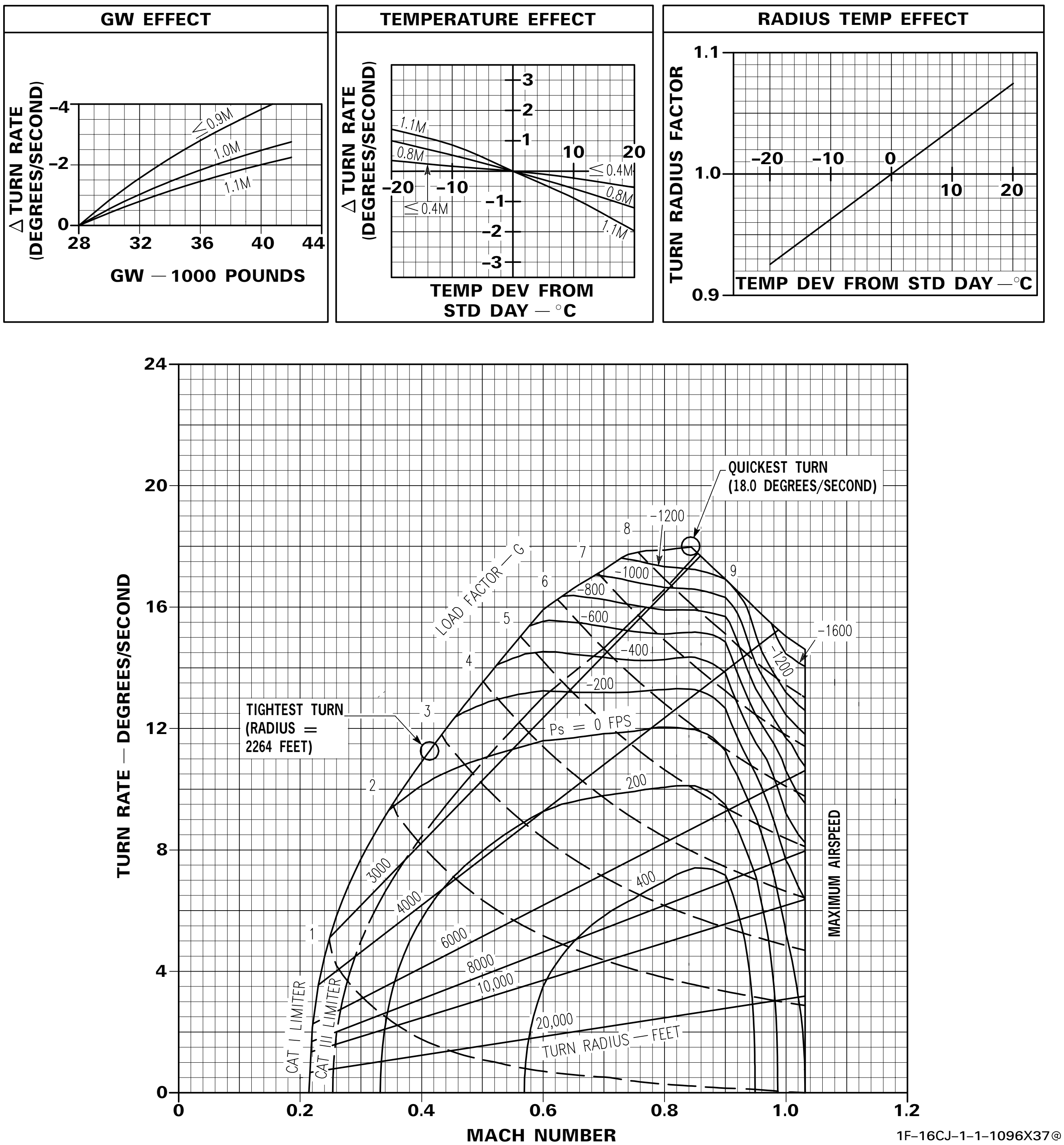


Figure C8-58.

Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

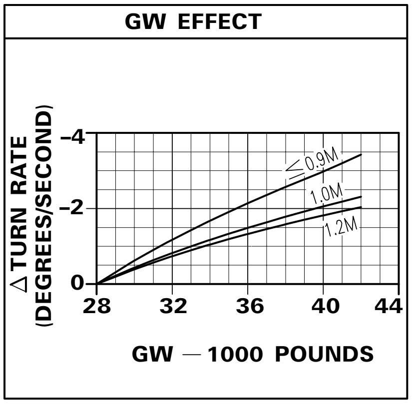
CONFIGURATION:

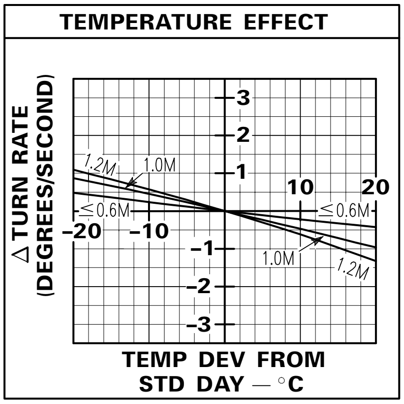
- DRAG INDEX = 150
- GW = 28,000 POUNDS

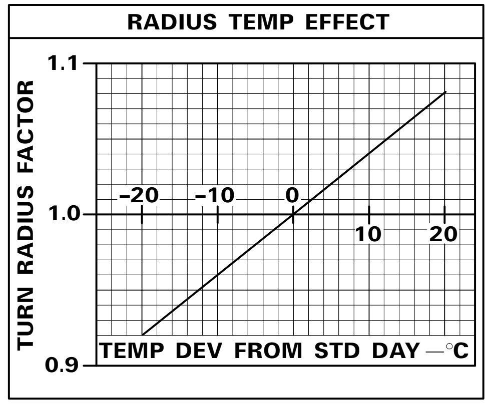
CONDITIONS:

- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







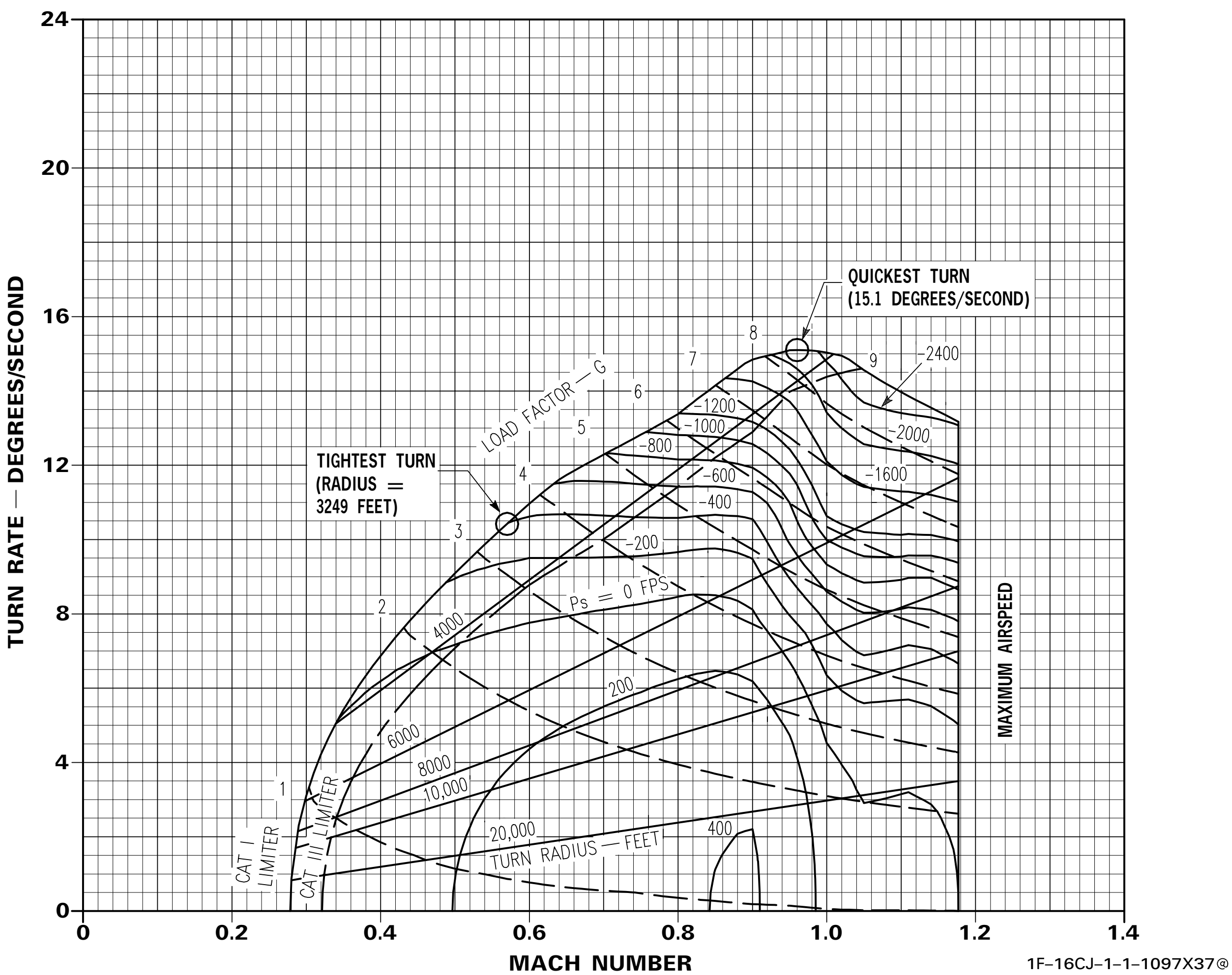


Figure C8-59.

Turn Performance — 30,000 Feet

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 150
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

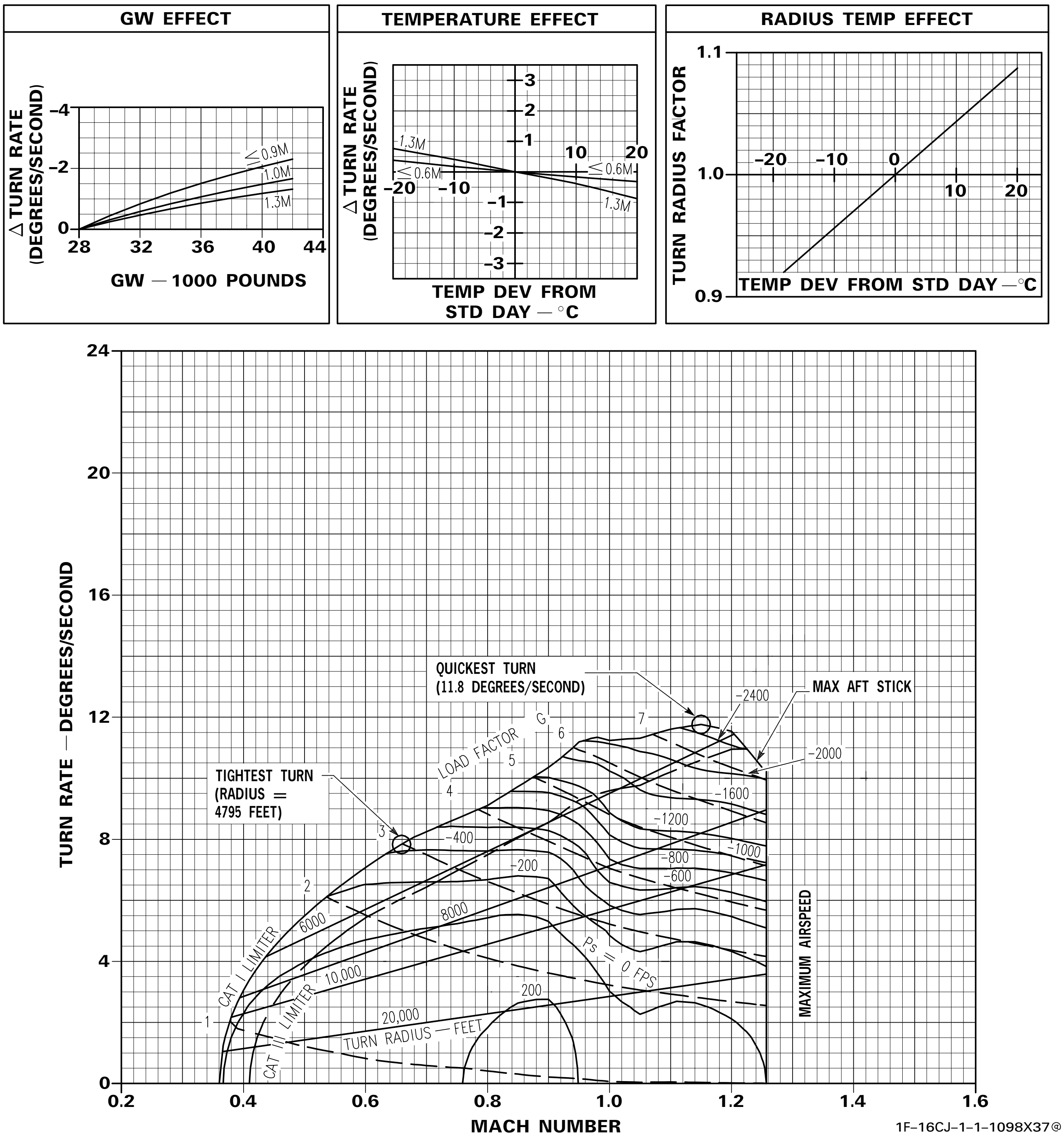


Figure C8-60.

Turn Performance — Sea Level

DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.

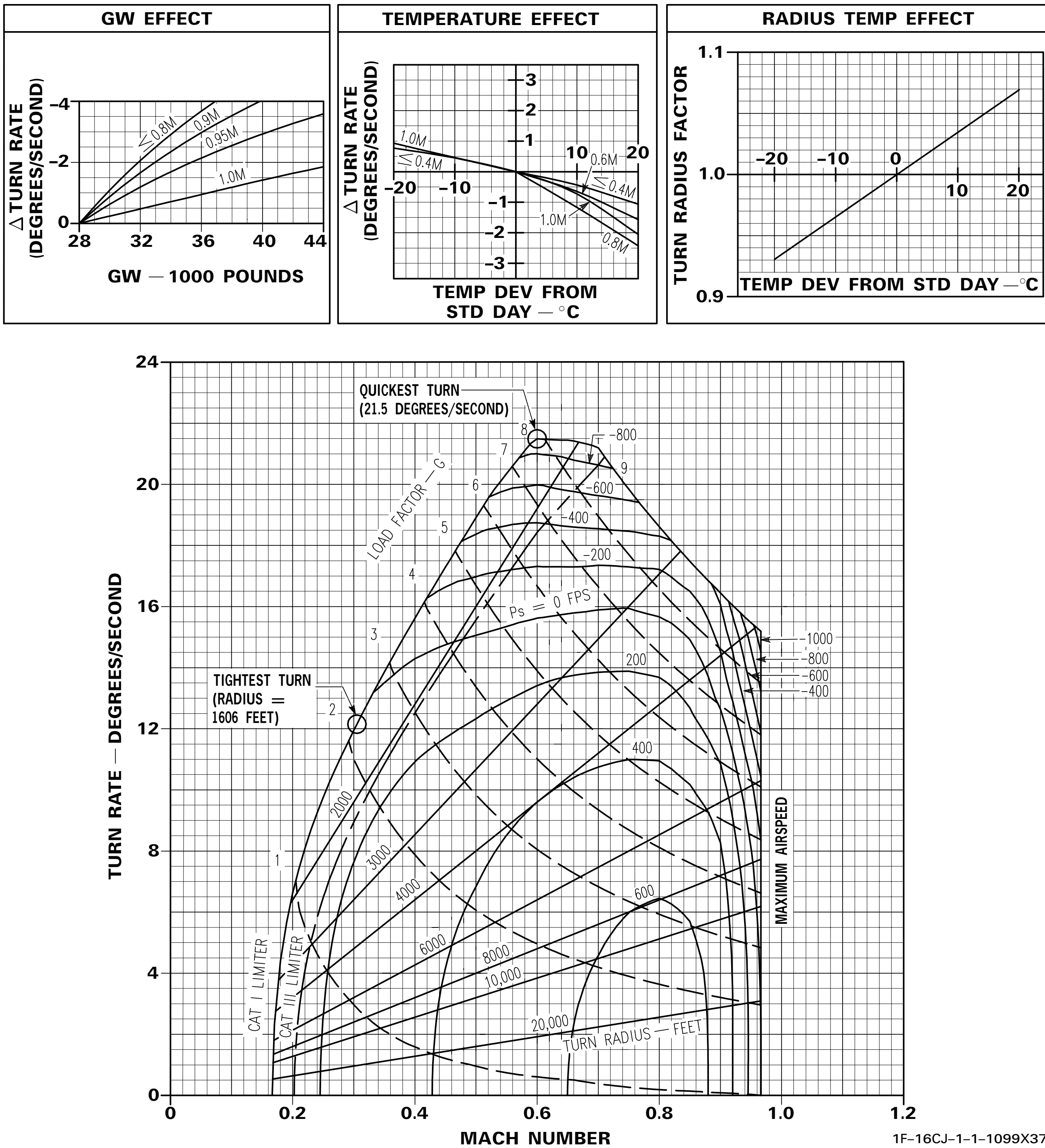


Figure C8-61.

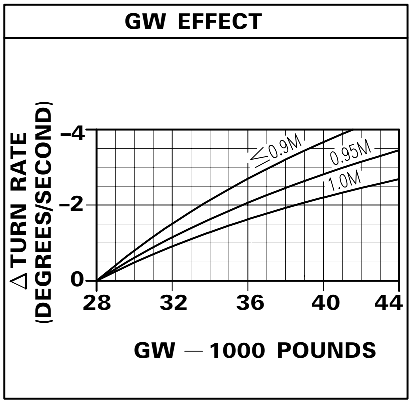
Turn Performance — 10,000 Feet

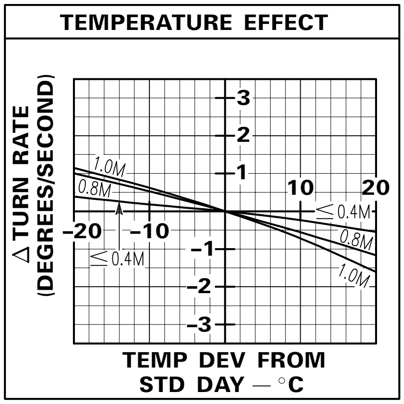
DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

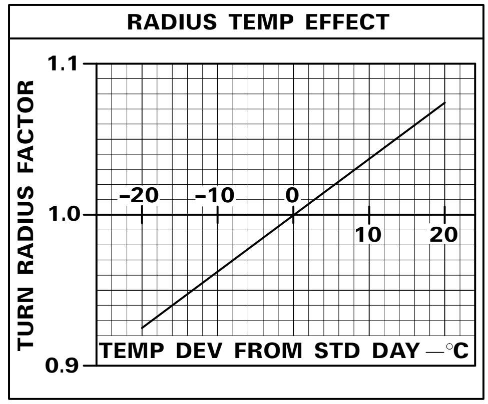
CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







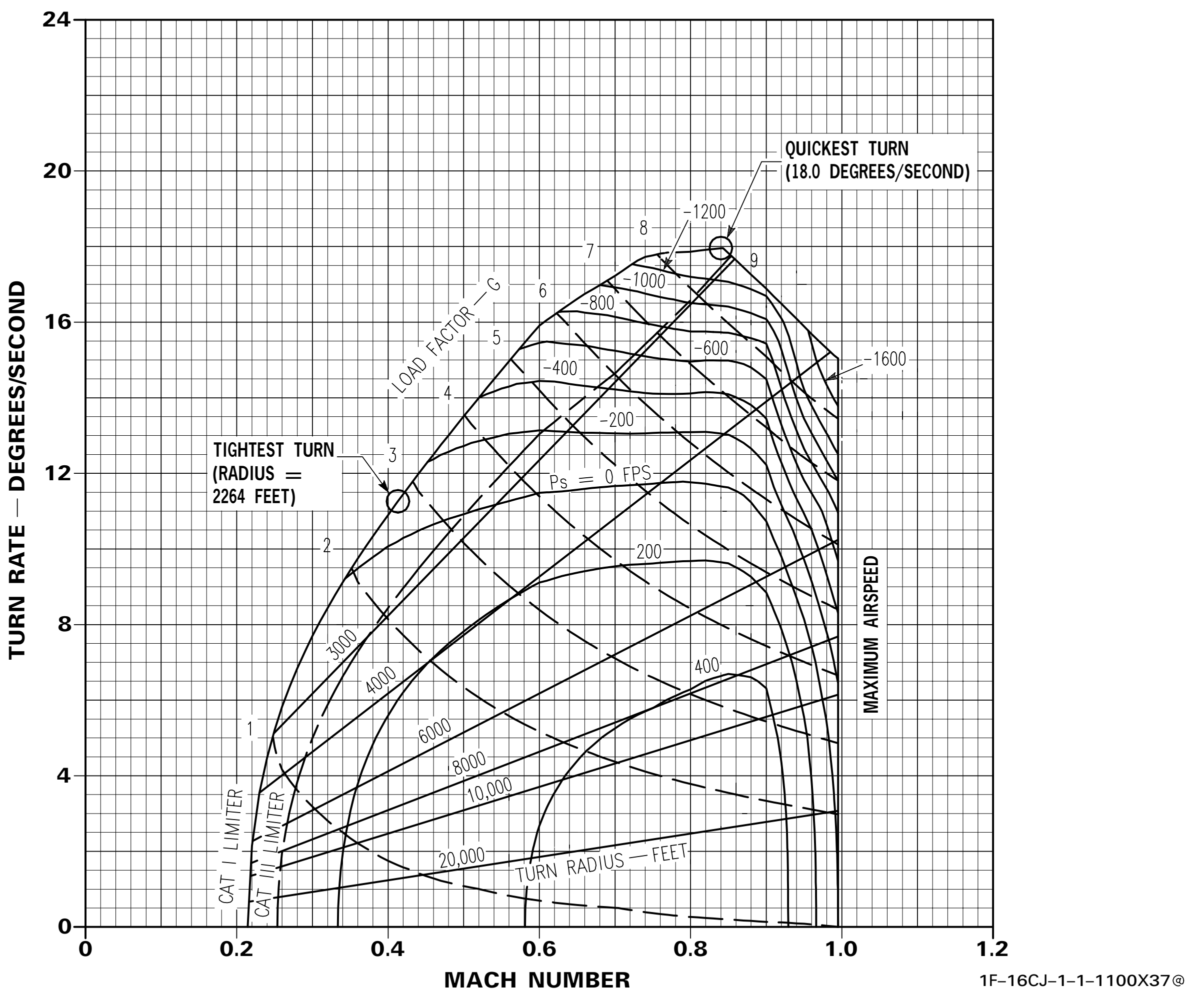


Figure C8-62.

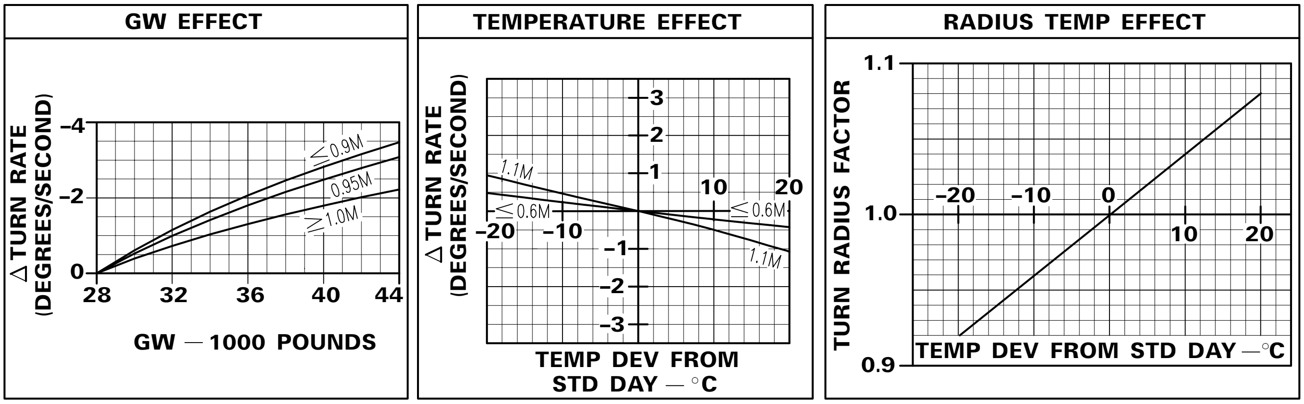
Turn Performance — 20,000 Feet

DATA BASIS ESTIMATED | **ENGINE F100–PW–229/CFT**

CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.



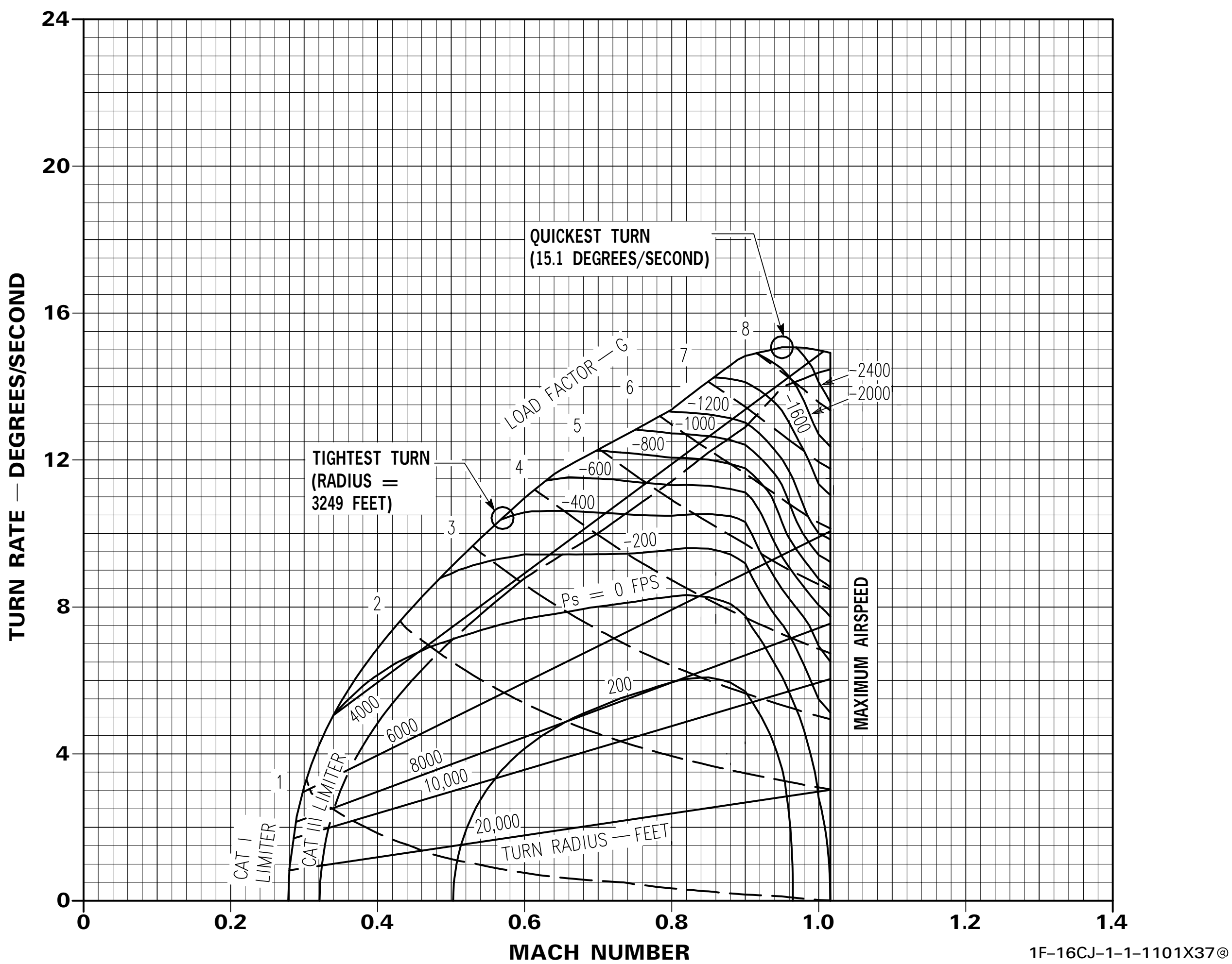


Figure C8-63.

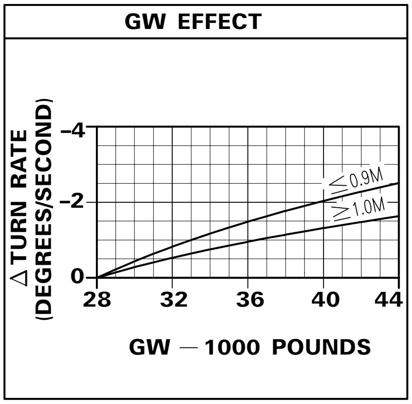
Turn Performance — 30,000 Feet

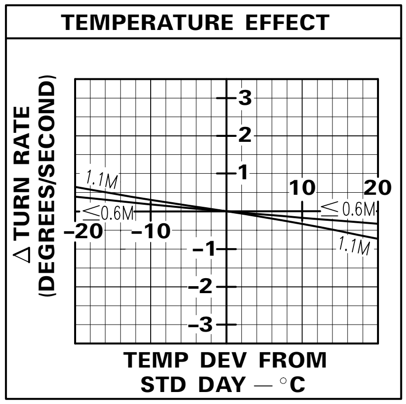
DATA BASIS ESTIMATED **ENGINE F100–PW–229/CFT**

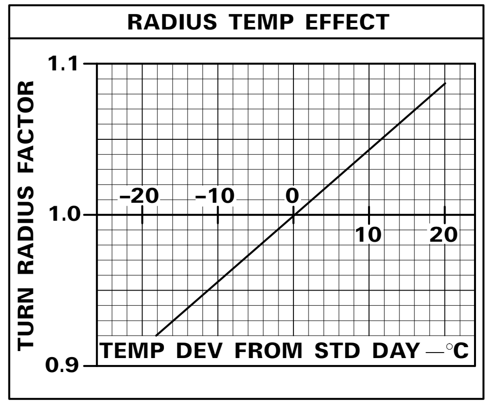
CONFIGURATION:
- DRAG INDEX = 200
- GW = 28,000 POUNDS

CONDITIONS:
- STANDARD DAY
- MAX AB

NOTE: REFER TO SECTION V FOR AIRSPEED LIMITATIONS.







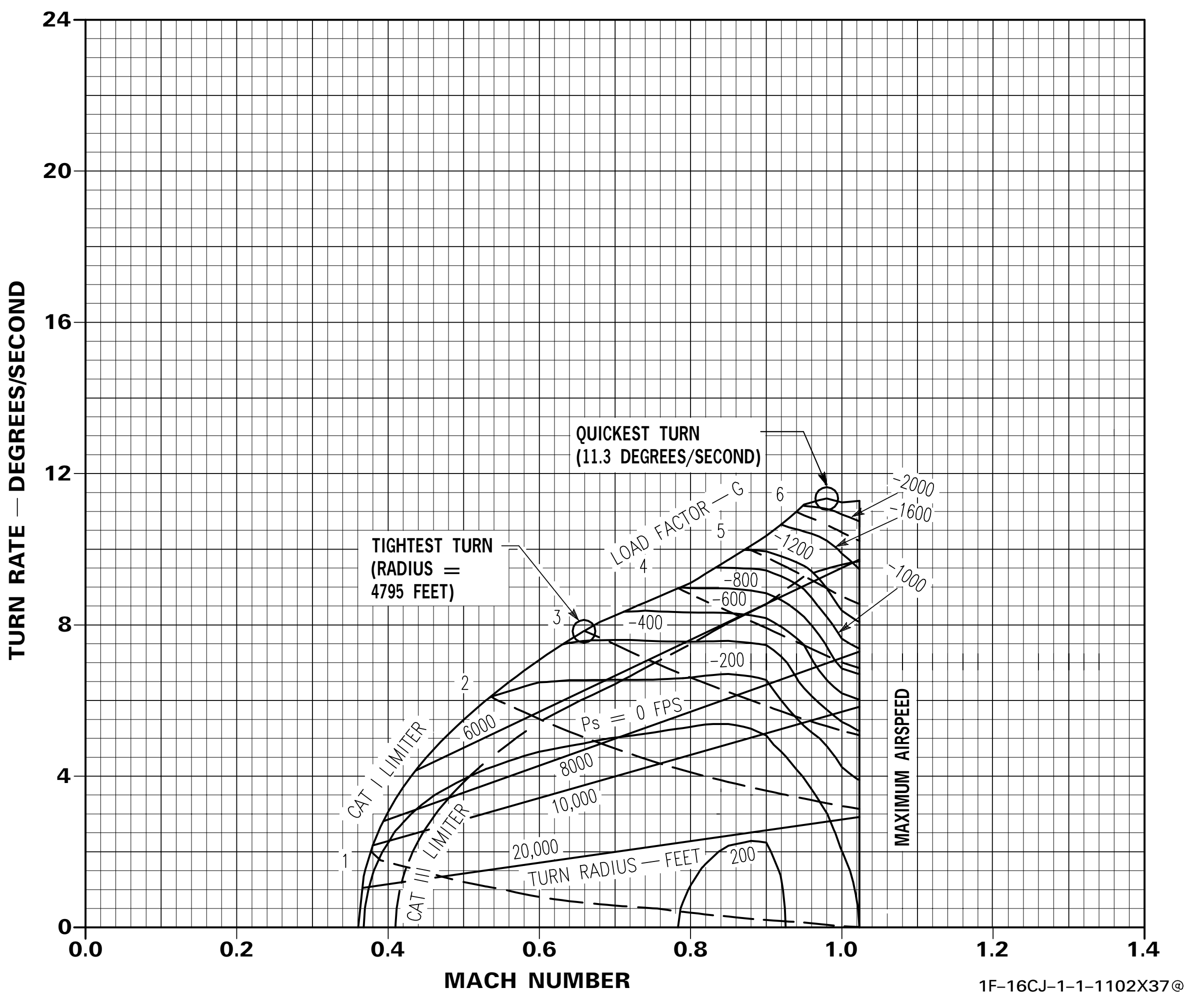


Figure C8-64.

Deceleration — 20,000 Feet

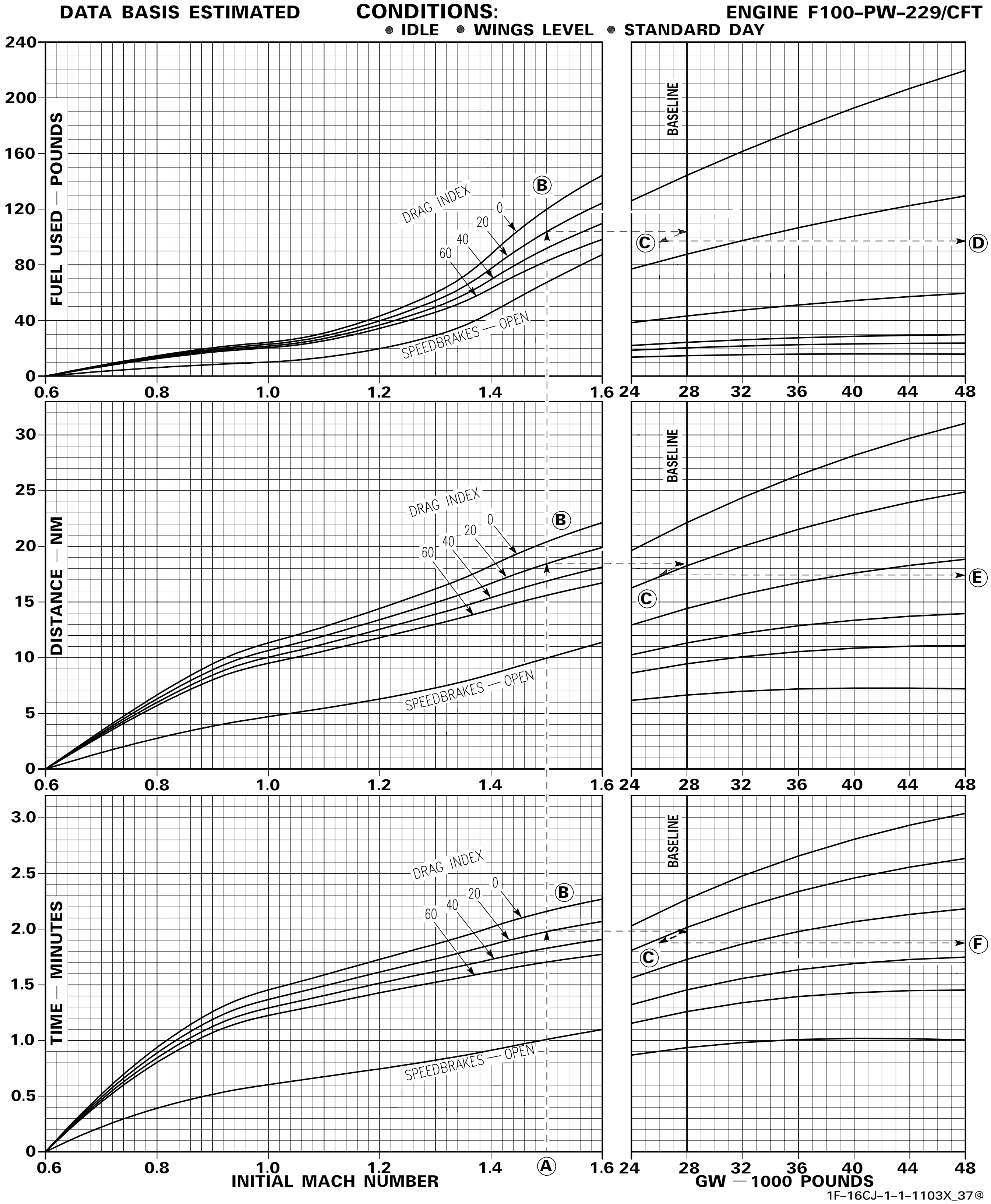


Figure C8-65. (Sheet 1)

Deceleration — 30,000 Feet

DATA BASIS ESTIMATED

CONDITIONS:
- IDLE
- WINGS LEVEL
- STANDARD DAY

ENGINE F100–PW–229/CFT

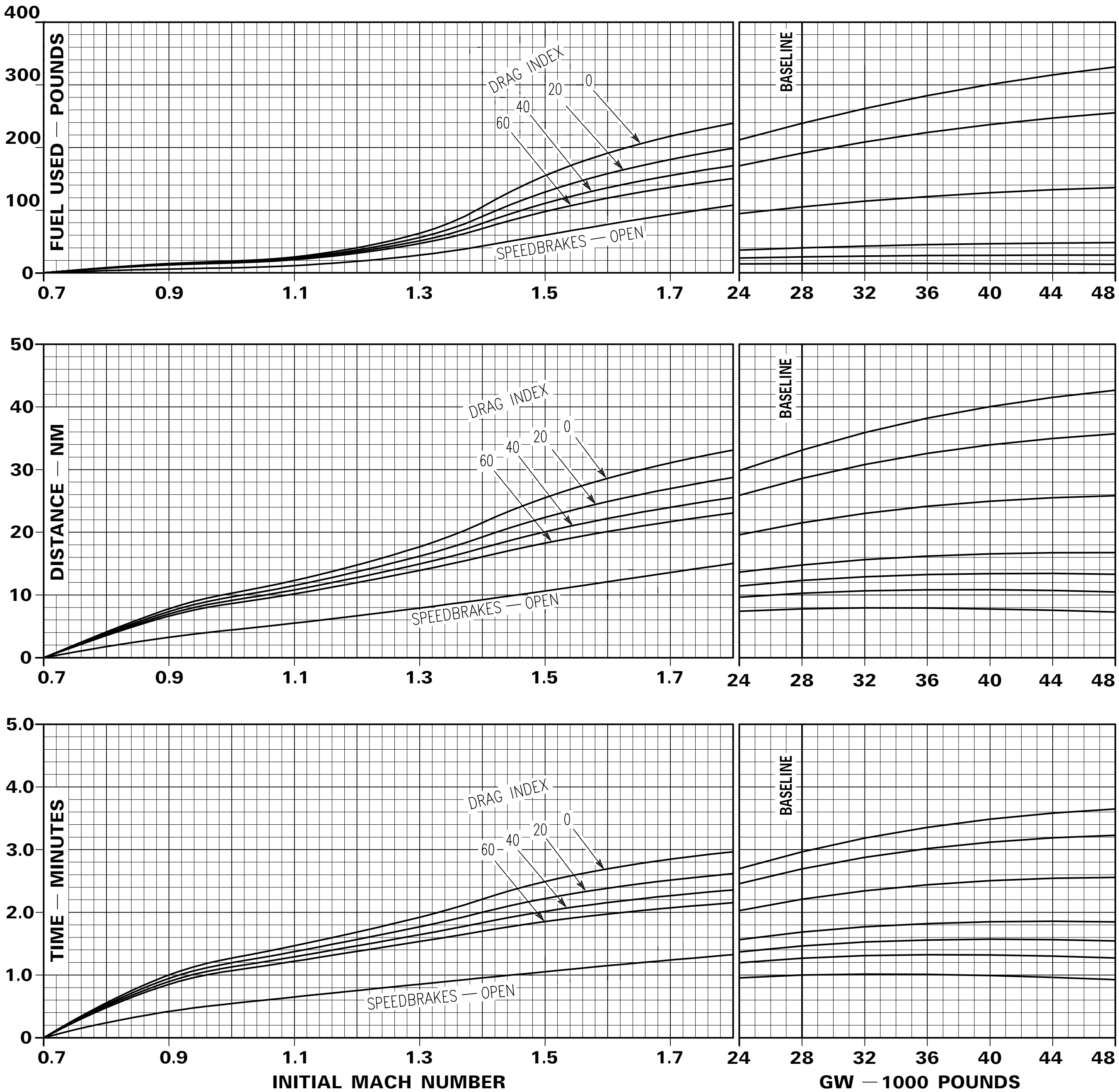


Figure C8-65. (Sheet 2)

Deceleration — 40,000 Feet

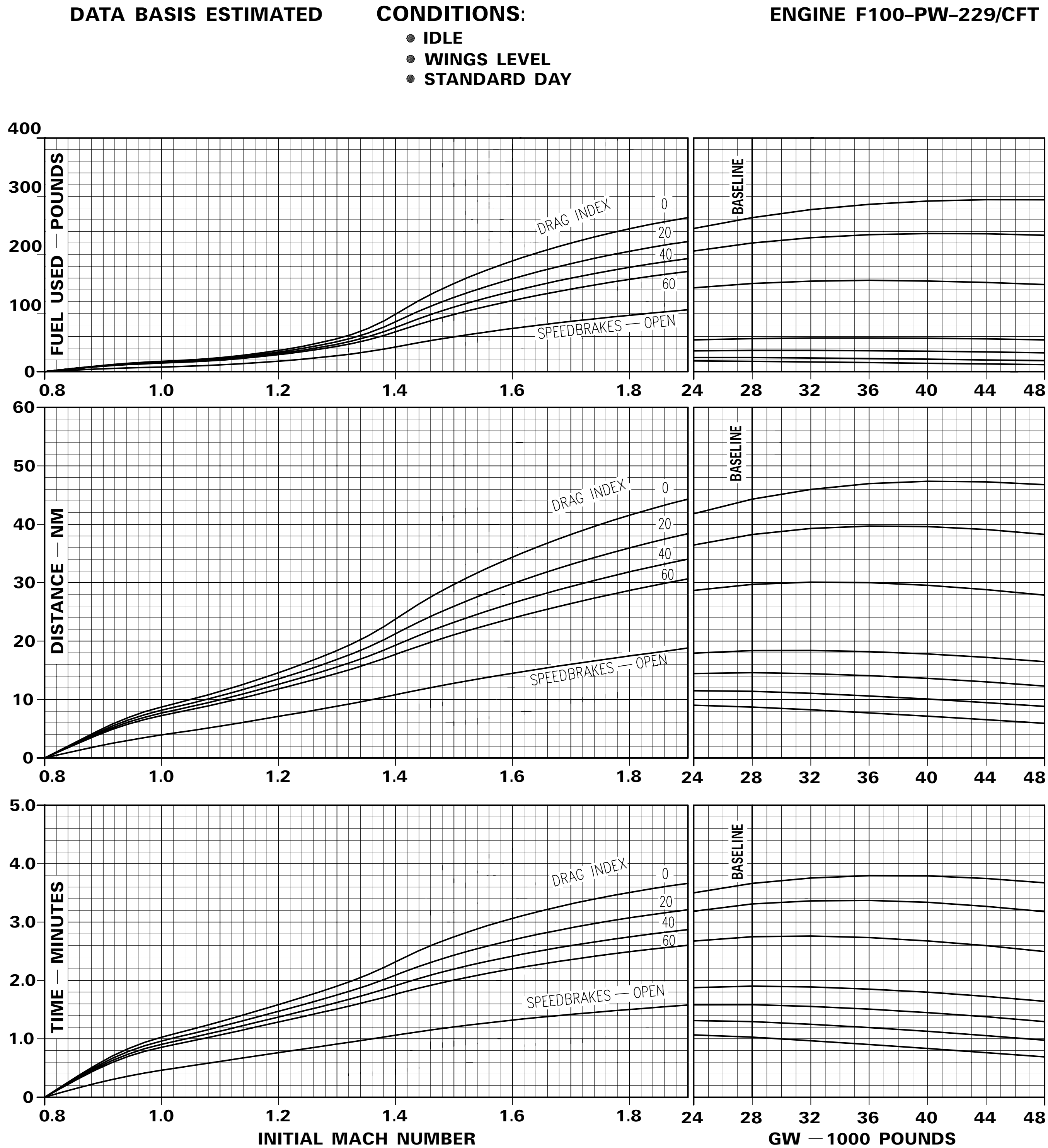


Figure C8-65. (Sheet 3)

PART 9 – MISSION PLANNING

Refer to Appendix A, Part 9 – Mission Planning